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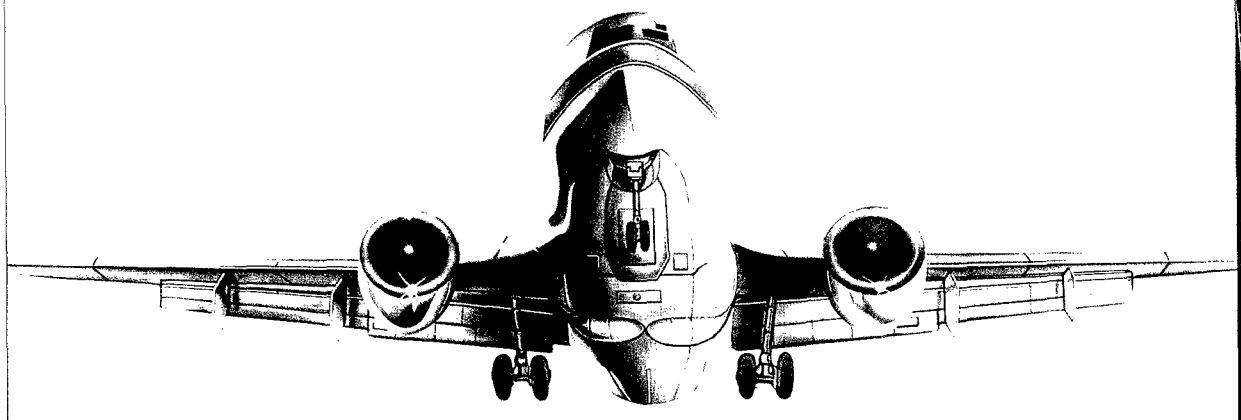

mobility and forward presence

Logistics

Theater Mobility Forces: Command and Control Doctrine

Retooling Global Mobility and Forward Presence: Solving the Challenges of Opening Air Bases

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Special Feature

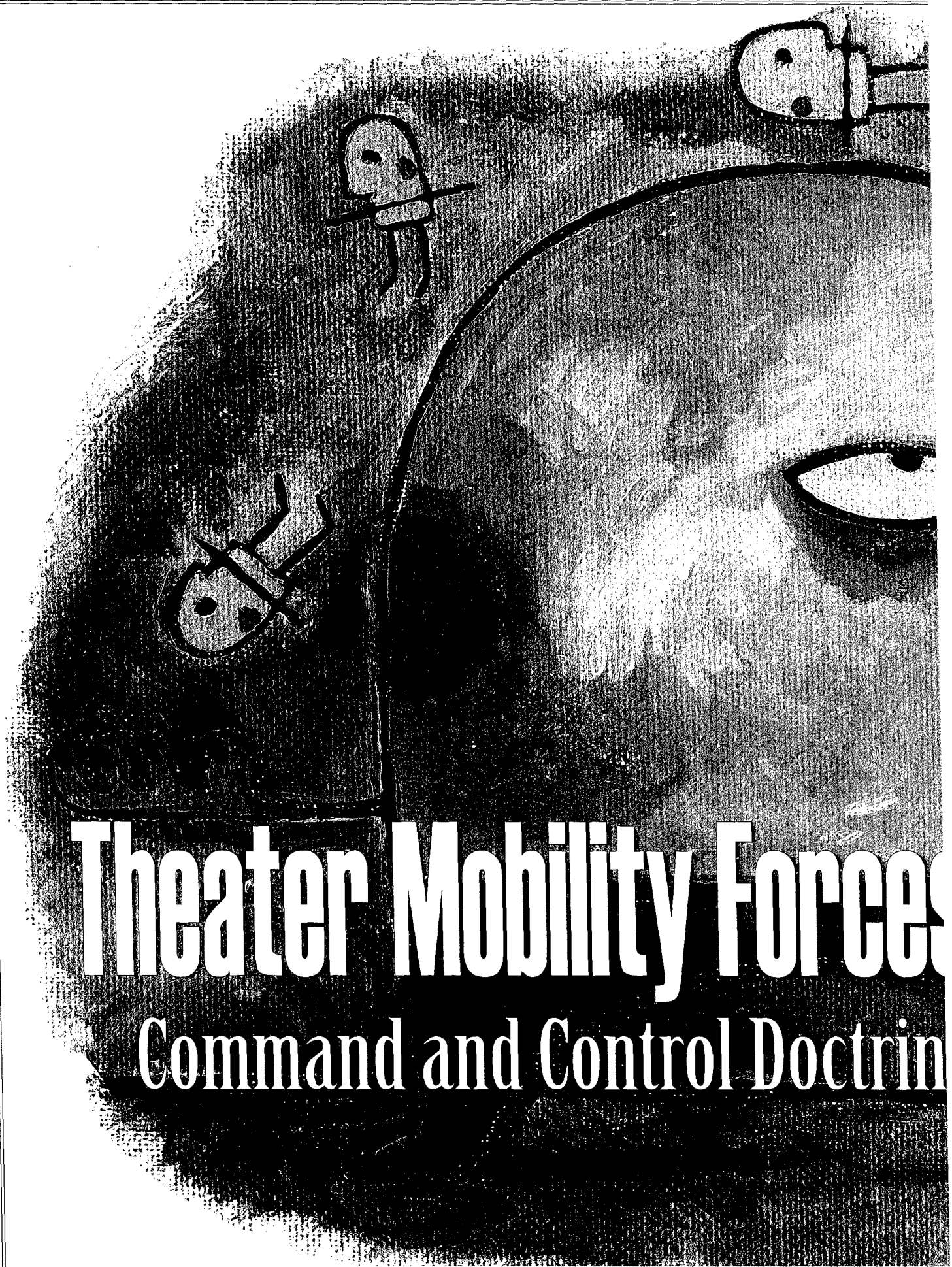
Enduring Freedom and Iraqi Freedom demonstrated the enormous capacity of the US military to establish forward locations for expeditionary operations. These operations highlighted significant areas where the United States can enhance its ability to project forces.

mobility and forward presence logistics

Theater Mobility Forces: Command and Control Doctrine

Retooling Global Mobility and Forward Presence: Solving the Challenges of Opening Air Bases

This edition of the Journal begins with two articles that look at different facets of mobility. In "Theater Mobility Forces: Command and Control Doctrine" the authors argue that lessons learned from history would indicate that post-conflict consolidation always will be appealing but rarely pay the expected dividends and that having a clean chain of command is a valuable tool. Organizing mobility forces can be accomplished either through a specific mission or geographical area or a combination of the two. The main lesson learned from history is that an airman in charge of the air forces is needed, but it is also important to have a commander who understands the missions of the aircraft commanded. Another lesson was that a commander in theater would be more effective. This does not negate the fact that a global view, such as tactical airlift control center maintains for all strategic airlift, allows for an efficient worldwide system. However, in a contingency theater, there needs to be a theater commander, much like that seen in airlift doctrine during Vietnam and the Pacific theater of World War II. In "Retooling Global Mobility and Forward Presence: Solving the Challenges of Opening Air Bases" Croslen and Kwolek point out that given the US forward presence strategy and limited strategic lift capability, the key to knocking the door down (forced entry) and killing targets is the ability to achieve global reach through expeditionary basing and sustainment. Opening airbases is critical to building up forces to gain and expand the strategic initiative. Effective base opening requires the synergistic effects of applying both ground and air forces while transforming from joint interoperability to exploiting the synergy of joint interdependency. Enduring Freedom and Iraqi Freedom demonstrated the enormous capacity of the US military to establish forward locations for expeditionary operations. These operations highlighted significant areas where the United States can enhance its ability to project forces.



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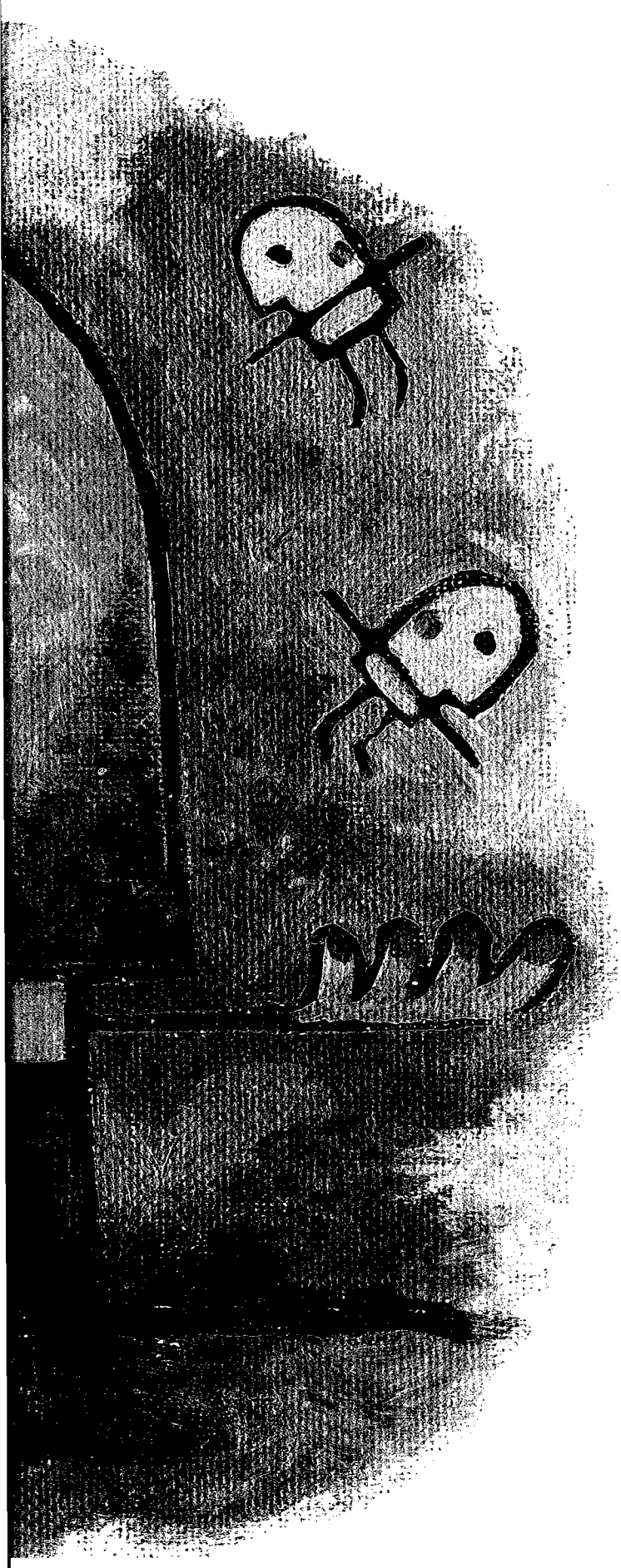

Lieutenant Colonel Robert W. Swisher, USAF
Lieutenant Colonel John F. Holly, USAF

Introduction

Special Feature

The modern era of Air Force mobility operations has evolved to the point where there is an assumption that airlift and refueling are simply functions that will be in place. The recent experiences in both Operations Enduring Freedom and Iraqi Freedom point to the fact that airlift and its abilities to place a new, lighter, more maneuverable force into a theater rapidly and support ongoing combat operations is a fact. The question remains, is US doctrine, currently being used, the best possible method for commanding and controlling this force in theater? There is always tension between effectiveness and efficiency, and with a global air mobility support system, built by the US Transportation Command (TRANSCOM), there is no doubt there is a need for efficient and effective use of air mobility assets to accomplish the intertheater mission of strategic mobility. This mission is handled internally through a large and experienced organization staffed with experts from all facets of the mobility forces, the Tanker Airlift Control Center (TACC). But the TACC does not control theater-assigned assets; therefore, the question is, how effective is the command and control of mobility air force assets for theater-assigned assets such as the deployed C-130 or KC-135 unit? The modern doctrine of deploying a joint air operations center (JAOC) and controlling all air assets from this single point has presented opportunities in integration of air assets at the theater level. Has this same mindset allowed for specific noncombat air force assets and limitations to be swept aside? Both tactical airlift and tanker assets are in the precarious position of not being a combat air force asset, yet routinely flying combat missions requiring combat air force asset support. Both assets often are required to move up into an increasingly hazardous airspace to support the battle plan and are integrated in the air operations center (AOC). Yet, the function of a single advocate with indepth training or knowledge of the system and *command authority* is missing from the current command and control doctrine.

This article highlights a phenomenon that has appeared gradually through separate iterations that have left the mobility forces, brought together by the creation of Air Mobility Command (AMC), with a direct chain of command that does not include experts in the mobility systems and draws on advisors

or directors from outside the command chain to ensure mobility operations are conducted correctly. This chain of command does not lend itself to clarity, when, in fact, there could be a simplistic chain, including the mobility expertise that current doctrine acknowledges is necessary to accomplish the mission but inserts through a director or advisor, rather than a needed level of command.

Through review of successful mobility missions and organizations, the effectiveness of the current system is evaluated. Then current doctrine, both joint and Air Force, are reviewed from a historical viewpoint because past successes should be reflected in current doctrine for mobility forces. First, if the doctrine is appropriate, there should be clarity in the chain of command from the loadmaster or boomer out flying the line to the commander in chief. The knowledge required for employing mobility forces should be internal to the command structure and not cycle on 90-day rotations. Second, the doctrine should provide clear commander and subordinate relationships and provide guidance for probable situations. Third, doctrine should provide clear control and integration of mobility forces in the joint force commander's (JFC) plan with clear designation as to who is responsible for what action, including planning and execution. There should be a clear and concise process for ensuring that mobility missions are properly tasked, planned, and executed. If this is not included in current doctrine or does not follow any of the historical examples of success, then an explanation of how the system has evolved will be explored.

A proper chain of command is required to provide the order and discipline military forces require. There is a reason there are pictures in military buildings showing the chain of command from the squadron, group or wing, depending on the building, all the way to the President of the United States. There is a responsibility in command, and a clear understanding of who is in command is never more important than when employing forces in combat. Today's expeditionary leadership model already creates turmoil within the forces, requiring airmen to work under provisional leadership for short periods. In this situation, it becomes even more important to have a clear command chain.

After a clear chain of command has been established, command relationships need to be built into the mobility chain of command. There are five basic types of airlift missions according to joint doctrine:[1] passenger and cargo movement, combat employment and sustainment, aeromedical evacuation, special operations support, and operational support airlift. Primary consideration is given to the missions of passenger and cargo movement and combat employment and sustainment airlift missions. Joint doctrine[2] also states there are six missions for refueling forces: single integrated operational plan support, global attack support, air bridge support, deployed support, theater support to combat air forces, and special operations support. The missions common to contingency and theater war support will be the emphasis for evaluating doctrine. Within these missions, there are both intratheater and intertheater assets performing these missions. In all these missions and with the separate inter- and intratheater aircraft, command relationships that ensure support and coordination at all levels are critical. An example of this command relationship would be the airlift group and wing commander's relationship with the JAOC director. As a unit tasked by the joint air operations center, the director responds directly to the authority of the joint forces air component commander (JFACC), who has operational control or tactical control of all forces. Yet, what is the feedback loop for an airlift-centric commander located 600 miles away when dealing with a generally strike-centric director? Is there clarity of the unique airlift requirements in the joint air operations center? The answer is yes, within the air mobility division or one of the several implanted planners in each cell. But should there be a concern or problem for the deployed commander of airlift forces, reference tasking, or type missions required for supporting the JFC plan, then the current chain of command extends from the group and wing commander directly to the JFACC, who normally will have little or no mobility mission knowledge. The relationships between functions and parallel levels of command need to be defined in doctrine. These relationships would vary drastically based on the size of the contingency or operation.

The stress of the increased need for airlift mobility, as the United States engaged in World War II, quickly led to overlapping and duplication of transport operations within the Army and Navy systems.

The last test for doctrine and the command chain is, does it have clear guidance for properly tasking, planning, and executing mobility missions? To accomplish this task, doctrine would clearly lay out who is responsible for accomplishment of the separate tasks involved with each of these functions. Where are mobility missions tasked in current doctrine, specifically, who will make decisions, and how will they decide which aircraft and unit will be tasked with a specific mission? Along with this obviously would be a process that would understand the different capabilities within the available aircraft in the theater. For instance, whoever makes this decision would have to know what type of defensive systems the specific unit aircraft have. If the rules of engagement call for missile defense systems, then there is a need to know who has those systems. Planning is the leg of this specific subset of test for doctrine. Doctrine should delegate the planning requirement, especially for combat missions. But more than simply delegating the planning function, doctrine should place the responsibility for the planning function at a level where the integration required in the crowded skies of today's battlespace can be accomplished. Finally, executing the

Figure 1. RQ-4A Global Hawk Over California

mission and in the execution, who will provide the oversight and command and control function for the mission, and when should that be altered? The command and control function for a brigade airdrop involving 18 aircraft would be quite different from that of a single aircraft airdrop resupply mission.

In all these tests, it is important to look to the past to ensure lessons learned are applied to today's doctrine, capitalizing on success from past mobility success and learning from previous mistakes. At times, it seems it is expedient to bypass historical lessons learned using new breakthrough technologies that slice through communication gaps and gather unheard of quantities of information. These breakthroughs obviously change the tools available to leaders. The one thing that has not changed is the human being. The instincts, needs, and reactions of today are very much the same as those evident in historic examples.

History of Airlift

History has examples of mobility operations that were shining successes and lays out the corrections made that brought those successes about. In each of the historical cases used in this article, there are good examples of how leadership decided to command, control, and execute mobility operations. The examples selected include the initial assignment and organization of airlift aircraft in the Army Air Corps, the Berlin airlift (Operation Vittles), the airlift required for Vietnam, and a review of Desert Storm. All these events will be examined specifically to the command relationships and mission orientation referencing how to incorporate both a global commitment and a theater commitment with the missions of strategic and tactical airlift. A well-organized system is required to employ effectively.

At the beginning of World War II, transport aircraft were in the Air Corps Ferrying Command under the direct command of the Chief of the Air Corps, Major General George H. Brett.[3] The stress of the increased need for airlift mobility, as the United States engaged in World War II, quickly led to overlapping and duplication of transport operations within the Army and Navy systems. The Army had separate systems grown from traditional bureaucratic methods for meeting the transportation needs. In a peacetime environment, separate systems evolved and seemed to be the best way to handle air transport. The systems were the Air Corps Ferry Command and Air Service Command (predecessor to the Air Force Materiel Command). Along with these were the Air Transport Command (ATC) (redesignated Troop Carrier Command in 1942), Air Training Command, and other branches of service with air-transport requirements that built their own transport forces. At this point, the Army Air Forces handled air transport similar to a private *corporate* air model, with each specific command owning and operating its own aircraft—a very inefficient system. There is beauty in this system, however. Transport forces were very responsive to a particular command's needs. The perceived need to have assigned aircraft rapidly meet a commander's need shaped airlift responsibilities and created a continuing debate that *owning* transport aircraft gives a local commander a decided advantage in influencing the fight. However, this system creates so much inefficiency that the system becomes ineffective, and without a large excess of airlift capability, it is not an option. General Henry "Hap" Arnold, Commanding General of the Army Air Forces, recognized that airlift demand was outstripping available airlift and, with the current uncoordinated system, took control of the

Article Highlights

The modern era of Air Force mobility operations has evolved to the point where there is an assumption that airlift and refueling are simply functions that will be in place. The recent experiences in both Operations Enduring Freedom and Iraqi Freedom point to the fact that airlift and its abilities to place a new, lighter, more maneuverable force into a theater rapidly and support ongoing combat operations is a fact. The question remains, is US doctrine, currently being used, the best possible method for commanding and controlling this force in theater?

Commanding mobility forces is not a simple task, yet, it is critically important to successful execution of combat operations. Edwin E. Tenoso, Desert Storm commander of airlift forces (COMALF), and Brigadier General Rod Bishop are the only two people with COMALF experience during a major theater war and director of mobility forces experience in a large-scale contingency. Both agree on the need for a theater air mobility commander to handle theater-assigned and attached forces and provide supervision for strategic forces that transit the theater. Their modern experience is consistent with that of Vandenberg (post-World War II), LeMay (1960s), and General William Momyer (Vietnam), all of whom believed in the necessity for a theater-based commander to orchestrate theater-specific and strategic airlift as effectively as possible.

The authors' proposal: first, a change to the current DM4 doctrine eliminating the rotational function of the role and providing a permanent staff of both an airlift and tanker expert; second, phase or full implementation of the change creating the commander of mobility forces with a rank equivalent to the air operations center director, working for the joint forces commander and retaining the tanker and airlift deputies. This would provide greater clarity, organization, and operational effectiveness compared to the current ad hoc system, which is relying too much on luck rather than premeditated organization to be effective.

situation by creating some semblance of mission-specific allocation of airlift forces. Arnold assigned the mission of delivering all aviation technical supplies to units in the Western Hemisphere to the Air Service Command, giving them a theater and a mission within that theater. He then assigned all transport outside the Western Hemisphere and all ferry missions to the Air Corps Ferry Command.[4] This gave the Air Corps Ferry Command the *global* theater and specific mission of ferrying aircraft regardless of geographic location. The wisdom applied here cannot be denied in that there are two basic criteria for assigning responsibility for airlift missions: geographic allocation (Western Hemisphere) or mission-specific allocation (ferry mission). These obviously can be combined: (geographic) Western Hemisphere and (mission specific) aviation technical supplies.

As the war effort progressed, Arnold decided that current mission division was unsatisfactory since there was still duplication of both logistics and aircraft movement to theaters.[5] He established ATC and built two distinct divisions within it: the Ferry Division for delivery of aircraft and Air Transport Division for shipment of resources to theaters. Both divisions had a global-specific mission. ATC also operated under the direct command of Arnold. Troop carrier commands were formed and assigned to the air force commander within a theater of operations and given the charge of theater air transport, similar to current theater airlift systems. These early airlift systems kept troop carrying separate from logistical support, for good reason. Airlift aircraft were an ineffective means of transporting troops to the theater. Generally, troopships moved units to the theaters. The carrying capacity of the aircraft at that time was so low that battalion-sized troop formations would be broken into several aircraft that would, most likely, arrive at different times because of aircraft-specific en route delays, such as weather or maintenance from long trans-Atlantic and trans-Pacific flights. Therefore, these problems were addressed in the command and control organization built by Arnold. In an attempt to assemble order in the theater and keep operational equipment flowing into the theater, he kept the missions limited and used short-haul troop carrier aircraft in theater and the long-haul cargo aircraft for moving critical supplies to the theater.

Arnold also had to battle geographic commanders who tried to hijack command of assets when they transited their specific areas. The theater commander's authority had been exempted by War Department memorandums, yet several theater commanders still tried to take charge of ferrying operations and personnel in their theater.[6] This battle is similar to the one faced today by strategic airlift aircraft, which enter and leave theaters, conducting long-range lift missions and are controlled by TRANSCOM. Theater commanders believe, in some cases, they should instantly get operational control or tactical control of all forces in their theater. This would play havoc with the global mobility system the United States has in place to move cargo and people. Yet, even in this burgeoning airlift scenario, Arnold proved there is a requirement to provide both intertheater and intratheater airlift responsive to taskings. The same issues that modern mobility forces face today were faced in World War II. Arnold realized that duplication of effort was inefficient and missions should be assigned to allow for effective mission accomplishment regardless of theater commanders' wishes. He also realized that experience and infrastructure would be required to ensure success of the mobility system and would require personnel and aircraft in the theater to remain under the command of the global systems he created.

In post-World War II, the Army Air Forces had the opportunity to make changes to the airlift system and incorporate the lessons learned from operations during the war. Arnold held a strong view that ATC (AMC of today) needed to keep the intertheater mission alive and ensure that access to the bases and infrastructure critical to deployment of forces remained intact.[7] Interestingly though, a Headquarters Air Staff study conducted by Lieutenant General Hoyt S. Vandenberg suggested the breakup of ATC by instituting separate overseas and continental United States (CONUS) commands and regionally oriented troop carrier divisions for tactical aircraft. It seems that Vandenberg's study realized the large difference in an efficient global system and what was needed in a tactical theater operation. In his study, Vandenberg recommended a theater transport air service with a theater air component commander. In this command, there would be a theater air transport division and a troop carrier command to provide all tactical airlift and airborne operations.[8] This interesting study provides the majority of modern day divisions of effort and lays out the command authority in areas where they would have the greatest influence. The study proposed a system that was very similar to the successful model seen decades later in Desert Storm. However, Arnold obviously did not agree with Vandenberg's assessment; his concern was more in line with ensuring the survival of the system. In his parting advice to his replacement, General Carl Spaatz, he pushed for total consolidation, and his recommendation overrode the majority of Vandenberg's study.

Postwar transition continued when President Harry S. Truman, under Executive Order 9877, directed the Navy to give up all but essential naval air transport functions to the newly formed Air Force. In 1948, the Military Air Transport Service (MATS) was formed, combining all transport, except for "tactical air transportation of airborne troops" and did not include "resupply of forward combat areas."[9] This distinction shows that the strategic system and tactical system were viewed as very different and that the training, equipment, and leadership of tactical missions required a separate set of skills from those that would optimize strategic airlift. The MATS organization did not gain any of the tactical missions; the separation line was now placed at a *mission type*. The Troop Carrier Command handled all the tactical systems, and MATS maintained the infrastructure and command and control of the strategic system. This system is reminiscent of the move of C-130 aircraft to Air Combat Command (ACC) when AMC was formed to give the theater tactical mission to the command that provided the majority of theater tactical aircraft (ACC).

The first test of the organization of MATS was the Berlin Airlift (Operation Vittles). Vittles was as much a test of the command structure as it was a test of the actual abilities of the aircraft and crews. The operation was a United States Air Forces in Europe (USAFE) controlled operation using the multinational Combined Airlift Task Force commanded by Major General William H. Tunner, who was reassigned from his position as deputy chief of MATS. This was a colossal undertaking of maximizing tonnage delivered to Berlin to save the Berliners from starvation and to prove US resolve in the growing Cold War. The MATS Commander, Major General Laurence S. Kuter, sought Air Force

approval for his recommendation to allow MATS to be responsible for the complete operation. The USAFE Commander, Major General Curtis E. LeMay, felt there should be only one headquarters, his own. He felt that two headquarters, meaning both MATS and USAFE, would not provide unified command direction. MATS' claims were twofold. First, MATS had the experience, and second, it shouldered responsibility to the national military establishment for air transport activities. USAFE made the counterargument that MATS could not operate independent of all the USAFE support facilities, and the primary responsibility for all operations in theater rested with Commander in Chief, European Command. Kuter, the MATS Commander, commented, "We [MATS] will be destroyed if we wind up with all our resources in Vittles and the troop carriers doing the global job."[10] This statement reflects the fear of loss of mission by the MATS Commander, but it is one that even today springs to light as the discussions rage over placing our latest C-17 (C-54 then) in a theater-tasked situation. Further, what the MATS Commander stated is that control or continued control of these strategic assets can be viewed as a war of survival for the strategic airlift commander. In the end, USAFE was given operational control of the mission and MATS exercised "assignment and accountability of all C-54 aircraft," not totally losing its aircraft or being devoid of voice in the conduct of the operation. This compromise sets a dangerous dual command for diplomatic or *salving of ego* reasons that, in this case, created a convoluted command chain and required definition of just what *assignment and accountability* control is. How that aided the famous operation is unclear, but this is an early example of creating less-than-optimal command chains to accommodate politics.

meets the theater commander's intent. MATS, however, still has the global mobility mission. The Vittles example shows that theater control is extremely important for large task-force-type missions in a theater, yet disputes about the leadership of airlift forces were already beginning.

In the 1960s, airlift command and control was once again examined to ensure there were no duplicate missions or efficiencies to be gained from the system during the pre-Vietnam, limited resource timeframe. Specifically, there was a recommendation to consolidate all airlift inside MATS and rename the command Military Airlift Command (MAC), making it a specified command. Defense Secretary Robert McNamara made a statement to Congress indicating that there would no longer be a need for a troop carrier command; the new C-130E and C-141 could perform both a troop carrier role and strategic airlift interchangeably.[11] In fact, in his testimony, McNamara stated:

> It might be entirely feasible to load troops and their equipment in the United States and fly them directly to the battle area overseas, instead of moving them by strategic airlift to an assembly point and then loading them and their equipment on troop carriers.[12]

This statement was the first inkling of direct delivery and the capability of bringing strategic airlift directly into a combat theater for employment of forces. However, the Chief of Staff of the Air Force, General Curtis LeMay, did not believe consolidation of the tactical lift assets made sense and stopped the movement. He commented:

> MATS, augmented by TAC [Tactical Air Command], provides intertheater airlift for all the Defense Department, and as such, this type of mission lends itself to centralized control from the continental United States and provides the basis for consolidation of strategic airlift resources.[13]

Troop carrier commands were formed and assigned to the air force commander within a theater of operations and given the charge of theater air transport, similar to current theater airlift systems.

Having shown the initial airlift thought process and attempts at efficiency, consolidation, and command and control structures, these first attempts clearly show a few evolving principles. First is the requirement to design some way of delineating missions, if not geographic, then through the type of mission—tactical missions versus strategic missions or geographic, continental US versus European. The second issue is the whole concept of a theater and theater command structure. Theater commanders have a built-in expectation that they will need air transport to execute their mission, and they are correct. However, there still remains the global support structure, and that, too, must fit into theater airlift tasking, execution, and command and control transiting the theater, yet not under their control. In post-World War II, there is a theater air forces command whose commander holds responsibility for all operational control of facets within the theater. Further, there is a troop carrier command division responsible to the theater commander to ensure tactical airlift

LeMay stated further that intratheater airlift and battlefield mobility do not lend themselves to central continental control; it must be controlled by a command structure in the battle area.[14] These two points are important, and current aircraft technologies and abilities do not alter the truth that is clear in these statements. Strategic and theater airlift are quite separate roles, and command and control must be built to accommodate their differing roles. LeMay believed the theater commander should command all assault aircraft.

In 1966, MATS was redesignated MAC and moved into the Vietnam era as a modern force, complete with jet aircraft capable of hauling more cargo faster than ever before; in fact, a C-141 could fly to Southeast Asia in 38 hours, where a C-124 required 95 hours or 13 days to make the trip. Along with the new

capability, there were additional pushes by MAC to consolidate all airlift under the single command. However, theater commanders supported General William W. Momyer, Seventh Air Force Commander, when he stated:

> The lesson of Vietnam on airlift further enforces the same lessons of World War II and Korea on the separation of strategic and tactical air forces. Theater war demands the assignment of tactical forces that have been designed, nurtured, and led by commands devoted to this highly specialized form of warfare.[15]

The lesson was learned that the command of tactical combat support aircraft needed to come from within the theater. Throughout the Vietnam conflict, Air Force Manual 1-9, *Theater Airlift Operations*, was followed, and the principle of a single theater commander with command of assigned tactical airlift forces led to an effective tactical airlift system.

As the war progressed, there were changes made to the initial force beddown. The Pacific Air Forces' 315th Air Division managed theater airlift from Tachikawa, Japan, at the beginning of the war and later moved to Tan Son Nhut to control airlift operations.[16] An in-country airlift division, the 834th, was built that, by all accounts, solved the unresponsive and distanced command and control of tactical assets from Japan. The 834th served under the Seventh Air Force and was the Military Assistance Command Vietnam's theater airlift organization.

In July 1974, MAC proposed a central point of management for operations, scheduling, and command and control in specific theaters. This would be accomplished through a designated commander of airlift forces (COMALF), dual-hatted as AMC's manager of intertheater airlift and the air force component commander (AFCC) appointed commander of all assigned theater airlift forces. This system put an airlift specialist in a command position for all assigned aircraft, ensuring all theater forces understood their chain of command extended through the COMALF to the AFCC. However, transiting strategic aircraft commanders understood the COMALF was a manager capable of providing assistance through the theater support network under the command. The second portion of the agreement was that the Airlift Control Center (ALCC) would be subordinate to the Tactical Air Control Center (TACC) in matters of airspace control and integration of the air effort.[19] This system provides a theater commander for the airlift forces. The ALCC was the single point of command to ensure all airlift functions were integrated in theater and the forces properly employed and cared for. For the AFCC, this provided a single point to refer all airlift issues to, and the ALCC was the central clearing point for airlift issues. This 1974 basic theater agreement remained in effect until 1991 (17 years), the longest standing command organization for airlift forces since their inception.

With the fall of the Soviet Union and an emphasis on rapid power projection, the decision was made to consolidate forces.

Several separate articles have used this as proof of the need for central control of airlift forces; however, it was not a central control of all forces. A theater control organization had the capability to ensure intertheater assets were supported rapidly. Once again, the intheater need for tactical integration of intratheater airlift was a proven concept; however, the global control of strategic airlift from the CONUS with a theater ground piece proved to be the best system. Yet, once again, a post-Vietnam study was performed, and duplication was cited as waste: "the maintaining of airlift aircraft and facilities for both tactical and strategic aircraft in two separate commands" specifically referring to the fact C-130s remained in TAC.[17] This setup is always an easy target for an efficiency study. Effectiveness is a different story, and the separate mission of tactical airlift handled in theater still seems to be the best solution. This premise is supported by the TAC Director of Operations statements in 1967 after the 834th stood up in country. "There has been a marked improvement in the management of the airlift forces in Vietnam since the reorganization...ref comments of senior commanders Southeast Asia and evaluations by Department of Defense (DoD) personnel following a visit to Southeast Asia this year."[18]

In 1974, Defense Secretary Henry Schlesinger integrated all C-130 aircraft (the only remaining tactical airlift aircraft) into MAC yet left a distinction between tactical and strategic airlift in place to ensure there was still a tactical capability. Theater airlift and how command relationships would work was a separate decision.

In 1987, TRANSCOM was formed, and in 1988, MAC gave up its specified command status and transferred operational control of C-141 and C-5 aircraft, along with CONUS-based C-130 aircraft, to TRANSCOM. No theater command and control changes were made; the changes had little effect on force employment. The test of this arrangement would be Desert Storm.

Desert Storm airlift forces were organized clearly. MAC transferred operational control (via TRANSCOM) to US Central Command (CENTCOM), which placed them under CENTCOM air forces, giving operational control of all airlift forces to COMALF.[20] TRANSCOM retained operational control of all strategic forces yet managed the intheater portion of its missions through the COMALF, who controlled all airlift assets and support in theater. The COMALF set up provisional units throughout the theater in a manner that created the greatest sense for the mission, logistics, and threats. Brigadier General Edwin E. Tenoso, Desert Storm COMALF, ensured that CENTCOM airlift needs were met. He commented, "These Gulf War COMALF experiences reinforced the need for an intheater airlift commander to justify basing and resources, and interfaces with the strategic airlift system and ensure readiness of the airlift force."[21] COMALF, however, was not a position that would survive the 1992 reorganization of the Air Force.

With the fall of the Soviet Union and an emphasis on rapid power projection, the decision was made to consolidate forces.[22] At this point, the common course of action throughout history has been to consolidate mobility air forces. This consolidation

places most airlift and tanker assets under one command. The rationale of this consolidation is that the combination of tanker and airlift capability would enhance the Air Force's capability for rapid global response.[23] This created AMC, and MAC was deactivated. With the addition of tankers and inclusion of two very different cultures, a new term was required for the theater commander of all these mobility forces. It was COMMOBFOR, Commander Mobility Forces. Along with the reorganization, airlift divisions were eliminated, and a central global command center was created, TACC, that, basically, would fill the need airlift divisions had been filling. Thus, with TACC's retaining operational control of all forces, the COMMOBFOR became a DIRMOBFOR—director instead of commander. The basic assumption is that all you need in theater is someone to coordinate with TACC, which is located at Scott AFB, Illinois, where both TRANSCOM and AMC are headquartered. In an interview, Lieutenant General Tenoso, the COMALF for Desert Storm, expressed his belief the move from COMALF to COMMOBFOR to DIRMOBFOR was purely political.[24] The logic stated was that without a division to command the DIRMOBFOR should only direct, but then who commands? Why had there always been a commander until this point, and where was the need going to be served? How would a director lead? Many questions in the new system begged answers.

The first question that should be answered is, when making a change like this, why remove an effective position like the COMALF, and what is driving this move? Looking from a distance, Tenoso's comment of "purely political" may have credence. At that time, AMC was standing up a large organization, TACC, that would be commanded by a brigadier general. This organization, along with worldwide communications links, would have to prove itself as a viable system. How would it interact with a commander in a theater that would control forces and en route assets? During this same period, the viability of the air operations center and the need for a single JFACC were under attack in the post-Desert Storm drawdown of forces. Another commander involved in the process seems redundant. Simply providing one senior leader to advise and coordinate airlift issues would be the direction the Air Force would take.

The problems in this concept are twofold. One, there are many issues for the DIRMOBFOR to handle. In this organization, they did not provide a staff, and second, the complexity of the issues effectively doubled by adding all the refueling assets to the group of mobility forces. During an interview, Tenoso provided insight into the subject of whether the COMALF of Desert Storm could have controlled all refueling forces in addition to the airlift forces.

> I could not possibly have done that job during Desert Storm if I had to worry about tankers. Brigadier General Caruana [Patrick P.] was responsible for all tankers in theater, and I was responsible for the entire airlift in theater. So, you had two brigadier generals with two full-time jobs and now, it is assumed, under a single DIRMOBFOR?[25]

Synopsis of Current Air Force and Air Mobility Doctrine

"Doctrine is authoritative but not directive."[26] It is this flexibility that allows the user to create an organization pliant enough to meet the challenges of military operations such as a regional conflict or theater war and all the variations in scope that fall in the category of military operations other than war (MOOTW).

However, this flexibility challenges the user's *doctrinal understanding and intent* when creating an organization to meet any of the above-listed challenges. This thought is reflected by Lieutenant General Michael C. Short, JFACC, during Operation Allied Force, who refers to the role of DIRMOBFOR/DM4 as "interesting but not reality"[27] and the claim by Rolanda Burnett that Short's air mobility division "did not reflect current doctrine."[28] One can easily argue that Short's air mobility division did reflect doctrine by virtue of the fact doctrine is authoritative but not directive.

Figures 1 and 2 illustrate air mobility doctrine through diagrams and key definitions.

Comprehension of doctrinal language is essential to understanding the relationships between forces involved in regional conflict or MOOTW. There are three command relationships:

- **Assignment.** Permanent transfer of forces.
- **Attachment.** Temporary transfer of forces in which the degree of operational control or tactical control is specified.
- **Support.** Other forces supporting a combatant commander such as other services or combatant commands. Used when neither assignment nor attachment is appropriate; these relationships are clearly defined.[31]

The military term *command* is defined in Joint Publication 1-02, *Dictionary of Military and Associated Terms,* as follows:

> The authority that a commander in the Armed Forces lawfully exercises over subordinates by virtue of rank or assignment. Command includes the authority and responsibility for effectively using available resources and for planning the employment of, organizing, directing, coordinating, and controlling military forces for the accomplishment of assigned missions. It also includes responsibility for health, welfare, morale, and discipline of assigned personnel.[32]

Doctrinally, the responsibilities and authorities of commanders vary as follows:

- **Combatant Command.** Command authority exercised only by commanders of unified or specified combatant commands unless otherwise directed by the President or Secretary of Defense. Combatant command (command authority) cannot be delegated and is the authority of a combatant commander to perform those functions of command over assigned forces involving organizing and employing commands and forces, assigning tasks, designating objectives, and giving authoritative direction over all aspects of military operations, joint training, and logistics necessary to accomplish the missions assigned to the command. Combatant command (command authority) should be exercised through the commanders of subordinate organizations. Normally, this authority is exercised through subordinate joint force commanders and service or functional component commanders. Combatant command (command authority) provides full authority to organize and employ commands and forces as the combatant commander considers necessary to accomplish assigned missions. Operational control is inherent in combatant command (command authority).

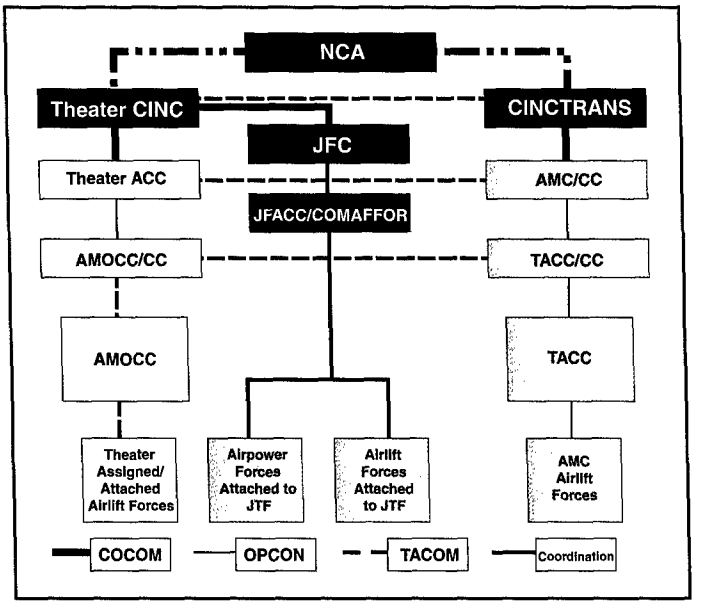

Figure 1. Command Relationships for Airlift Forces Attached to a JTF[29]

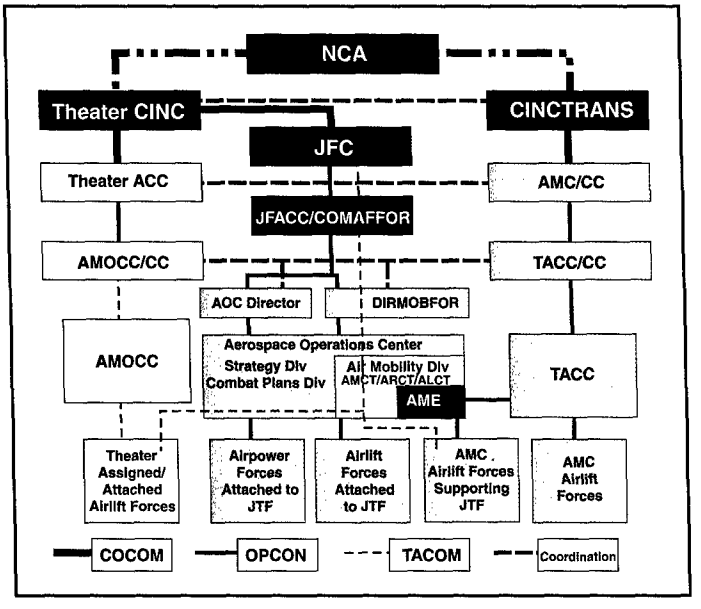

Figure 2. The JAOC and Command Relationships for Airlift Forces[30]

- **Operational Control**. Transferable command authority that may be exercised by commanders at any echelon at or below the level of combatant command. Operational control is inherent in combatant command (command authority). Operational control may be delegated and is the authority to perform those functions of command over subordinate forces involving organizing and employing commands and forces, assigning tasks, designating objectives, and giving authoritative direction necessary to accomplish the mission. Operational control includes authoritative direction over all aspects of military operations and joint training necessary to accomplish missions assigned to the command. Operational control should be exercised through the commanders of subordinate organizations. Normally, this authority is exercised through subordinate joint force commanders and service or functional component commanders. Operational control normally provides full authority to organize commands and forces and to employ forces as the commander in operational control considers necessary to accomplish assigned missions. Operational control does not, in and of itself, include authoritative direction for logistics or matters of administration, discipline, internal organization, or unit training.
- **Tactical Control.** Command authority over assigned or attached forces or commands or military capability or forces made available for tasking; that is, limited to detailed, usually local, direction and control of movements or maneuvers necessary to accomplish missions or tasks assigned. Tactical control is inherent in operational control. Tactical control may be delegated to and exercised at any level at or below the level of combatant command.
- **Administrative Control.** Direction or exercise of authority over subordinate or other organizations in respect to administration and support, including organization of service forces, control of resources and equipment, personnel management, unit logistics, individual and unit training, readiness, mobilization, demobilization, discipline, and other matters not included in the operational missions of the subordinates or other organizations.
- **Apportionment (Air).** The determination and assignment of the total expected air effort by percentage or by priority that should be devoted to the various air operations and geographic areas for a given period of time.
- **Coordinating Authority.** A commander or individual assigned responsibility for coordinating specific functions or activities involving forces of two or more military departments or two or more forces of the same service. The commander or individual has the authority to require consultation between the agencies involved but does not have authority to compel agreement. In the event essential agreement cannot be obtained, the matter shall be referred to the appointing authority. Coordinating authority is a consultation relationship, not an authority through which command may be exercised. Coordinating authority is more applicable to planning and similar activities than operations.
- **Support.** Responsibility and authority to aid, assist, protect, or sustain another organization. Such relationships between combatant commands are usually established by the Secretary of Defense.[33]

The joint task force creation, if it has Air Force forces, will lead to COMAFFOR appointment. The COMAFFOR can—but not necessarily—be dual hated as JFACC. JFACC appointment is at the discretion of the joint task force commander and usually signals the presence of substantial joint air involvement. The service with the preponderance of assets normally would assume the role of JFACC. For this discussion, it is assumed that it is an Air Force JFACC. The depth and scope of the operation normally mandate whether or not separate persons are required. As reflected in their titles, both have command authority. COMAFFOR/JFACC conducts operations through the joint air operations center.

> The JAOC is the aerospace operations planning and execution focal point for the JTF and is where centralized planning, direction, control, and coordination of aerospace operations occur for which the COMMAFFOR/JFACC has operational control/tactical control.[34]

The joint air operations center expresses the will of the COMAFFOR/JFACC through the air tasking order (ATO) and is the single point of contact for ATO planning, coordination, and execution. At this point, doctrine suggests a divergence for combat and mobility assets (tankers, airlift). It is here that the controversial role of DIRMOBFOR DM4 comes into view. Air Force Doctrine Document (AFDD) 2-6.1 describes the DM4 as follows:

> To further assist in the employment of airlift forces, the JFC through the air component commander may establish a DIRMOBFOR to function as the coordinating authority for air mobility with all commands and agencies, both internal and external to the JTF. Additionally, when designated, the DIRMOBFOR will ensure the effective integration of intertheater and intratheater airlift operations and ease the conduct of intratheater operations.[35]

> The DIRMOBFOR may be operationally tasked by the JFACC, but he is under the command of the COMMAFOR.[36]

> The DIRMOBFOR provides direction to the AMD while being responsive to the AOC director. DIRMOBFOR will serve as principle interface between the Theater Logistics Directorate (J4) and Theater Joint Movement Center (JMC) to ensure prioritization of airlift tasks against requirements and capabilities.[37]

DM4 has coordination but no command authority. Specific to the issue of mission planning, it is the theater air mobility operations control center (if one exists) or air operations center that executes theater airlift support for all assets assigned, attached, or made available for tasking by the geographic combatant commander or joint task force commander. More specifically, it is the AMD function of the air operations center that executes assigned and attached intratheater airlift in the joint task force/joint operations area/area of responsibility. Another example of flexibility or confusion would be the C-17 airdrop of Army forces north of Baghdad in Iraqi Freedom. Operational control remained with TRANSCOM while tactical control was exercised through the CENTCOM CFACC even though the mission was launched in another theater (the European Command).

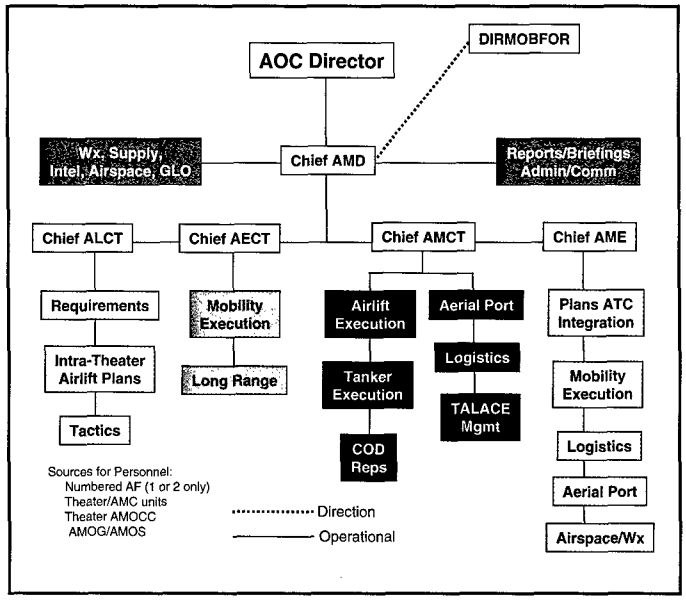

Figure 3. Notional AMD Airlift

The DM4 resides within the air operations center but is not a part of it. The DM4's focus is on the air mobility division that consists of:

- Air mobility control team, centralized air mobility C2; ATO execution;
- Airlift control team, theater mobility air tasking order, and airlift planning;
- Aeromedical evacuation control team, which integrates aeromedical assets and coordinates airlift to meet theater aeromedical evacuation requirements;
- Air-refueling control team, air-refueling support for theater air operations, and the strategic air bridge; and
- Air mobility element, AMC TACC liaison element in the joint air operations center, which integrates strategic and theater airlift requirements.[38]

While the air mobility element resides within the air mobility division, the DM4 has only a coordination relationship with the air mobility element because it works directly for TACC (Figure 3).[39]

Combatant command (command authority) provides full authority to organize and employ commands and forces as the combatant commander considers necessary to accomplish assigned missions.

The DM4's relationship to the air operations center director is best defined as direct liaison authorized: authority to directly coordinate or consult an action with a commander or agency within or outside the granting command. Direct liaison authorized is a coordination relationship, not an authority through which command may be exercised.[40] Coordination with the air operations center director and air mobility element is the responsibility of the DM4. Because of the nature and global reach of mobility forces, one of the DM4's main goals is effective coordination of intratheater (within the theater) and intertheater (between theaters) mobility missions and forces. This coordination is essential to bridge the *seam* between intertheater and intratheater airlift controlled by various commands and effectively orchestrate these assets with the combatant commander's mission and intent.

Critical Analysis of Current Doctrine

- Chapter 2 of Joint Publication 3-17 suggests that mobility planners and operators have the critical knowledge of

command relationships and control associated with the employment of US forces. This understanding is emphasized with the knowledge the JFACC may set up an organization unique to the situation or simply as desired. Mobility leaders and followers must have a grasp of the *theory of how it should be* and *what it really is,* all while facing the challenges of military operations that span intertheater, intratheater, and joint task force and joint operations area-specific operations. Are we flexible to the point of confusion?

- Referring to the *coordination authority* of the DM4, the role of mobility leadership, as currently illustrated in joint and Air Force doctrine, seems to be a role responsive to the organization that the joint force commander has created to face a regional conflict or MOOTW. It is not a leadership role responsive to the needs and setting the course of the mobility forces represented. Given the diverse responsibilities, the DM4's current existence reflects the axiom *responsibility without authority,* an axiom historically ridiculed in military leadership and management theory.
- Joint Publication 3-17 states, "DM4's focus is on the air mobility division and its primary components." Focus is not defined in Joint Publication 1-02, *DoD Dictionary of Military and Associated Terms.* Is this relationship too weak to be effective?
- Why does the DM4 work for the COMAFFOR and not the JFACC by whom currently tasked?
- As pointed out by Major Ted Carter, "AFDD 2-6 does not address completely the role of DM4 in support of MOOTW with multiple joint task forces, as was encountered during Allied Force. Is the DM4 a theater person or a joint task force person? According to an authoritative source in the Air Force Doctrine Center, this is still an issue "in discussion and in need of clarification."[41]
- The current structure does acknowledge the need for mobility expertise by virtue of the DM4's existence. But the DM4 still lacks the breadth of experience to handle tanker versus airlift issues. Can a tanker crewmember acting as the DM4 really pass judgment on the feasibility of a planned night airland to a dirt strip under night-vision goggle conditions? In Desert Storm, there were two separate individuals working tanker and airlift issues. Tenoso handled the COMALF duties while Caruana was responsible for all tankers in theater. If two separate specialists were necessary then, why not now?

Recommendations

From the first iterations of using aircraft for mobility purposes, to recent high-tech combat operations, the need for airlift and air refueling has grown. In reviewing current doctrine and building the required measures for effective command and control of mobility assets, we must first review what the criteria were that the recommendations flow from.

- If the doctrine is appropriate, there should be the clarity and expertise required to employ forces in the chain of command. Everyone, from the loadmaster or boomer out flying the line to the commander in chief, should understand the chain and everyone making critical (command) decisions in it.
- The doctrine should provide clear commander and subordinate relationships and guidance for probable situations. No assumptions as to roles or responsibilities, there should be clarity and usage of common, jointly defined terminology for command relationships.
- Doctrine should provide clear control and integration of mobility forces in a force command plan with clear designation as to who is responsible for what action, including planning and execution. There should be a clear and concise process for ensuring that mobility missions are tasked, planned, and executed properly.

The first suggestion, a clear chain of command, is poorly indicated in current doctrine in that, although doctrine depicts all the air assets being commanded by the JFACC, in reality, the span of control of the JFACC is usually far too broad when mobility forces are included. Tenoso's comments that the addition of the tanker force to COMALF's responsibilities would have made his job impossible is a telling statement as to the amount of effort required to run the complete package of mobility forces in theater.

A more current example of the complexity of airlift operations is from Enduring Freedom and Iraqi Freedom. Figure 4 indicates a robust, management-heavy staff. Yet, Brigadier General Bernard J. Pieczynski spoke of 14-hour days, 7 days a week, for numerous consecutive months (Figure 4).[42]

Pieczynski also indicated how great the responsibilities were in the airlift arena and how this dominated the bulk of the air mobility division director's time. In the above-illustrated structure, the senior tanker person was an 0-5 (at most). While no substantial tanker issues arose regarding management of tanker assets, most likely this was because of Pieczynski's personal interface with the senior tanker person and air operations center director. While not a tanker person by experience, Pieczynski has extensive tactical and strategic airlift expertise. This vast operational background and effective management skills were sufficient in this situation.

America's military is brilliant in its execution of warfare at a lightning fast pace. In Iraqi Freedom, we even surprised ourselves at how quickly combat forces could advance. The current record suggests we were well inside the Iraqi Observe, Orient, Decide, Act (OODA) loop. Does this blistering pace threaten to get inside our own OODA loop?

After reviewing all evidence, there seemed to be two possible courses of action, each one creating varying amounts of change. These two actions, which build on each other, would create the best mobility command structure for the future. The options are:

- Improving the DM4 position, to include making the position report to the JFACC Commander, and making it a permanent position with a permanent set of airlift and tanker deputies.
- Giving command authority to the DM4, making him a COMMOBFOR, along with the improvements from the central operating authority, one above.

Option one would end the rotational DM4 disturbance that is currently the way we are manning the DM4 position. With an assigned DM4, the relationship between JFACC and DM4 would be stronger. Training time could be longer and spent more effectively because there would be no need for the large number of DM4s currently required. The corporate knowledge lost each time a DM4 rotates out of theater is a drain on theater operations. If DM4s stayed in place longer, they could build, evaluate, and

make minor corrections to policies rather than have the limited effect of 90 days in theater.

Based on the very different experience and knowledge required for ensuring that airlift and tanker operations were optimized, there would be a requirement for a deputy responsible for each mission. This in-country expert team of DIRMOBFOR, deputy DIRMOBFOR for airlift, and deputy DIRMOBFOR for tanker operations would give the JFACC a functioning, long-term staff that would handle all mobility functions, from start to finish, of the contingency and add the recent operational expertise needed. Current doctrine does not build this expert system that could have mitigated some of the tanker-specific problems that arose during Allied Force. The Allied Force combined air operations training (CAOC) had an air mobility division staff composed of officers who had tanker experience, but not all of it was recent. One individual was from Headquarters Air Training and Education Command. Another was a T-47 pilot; still another was an Air Force academy professor who had not flown in years. Questions regarding Allied Force tanker operations ran rampant throughout the AMC chain of command until a suitable tanker expert was agreed upon and placed on staff.[43]

To improve the command chain, the second phase of change would be to create a COMMOBFOR. This position would be a brigadier general, and the staff would still have the two deputies, one for airlift and one for refueling operations. This would not provide a director but a single individual with command authority. In this position, the COMMOBFOR would provide a single entity to be responsive to not just the joint force commander or JFACC's requests but to individual service issues or specific ground force commanders. During rapid-moving combat and planning prior to the movement, someone needs to ensure all mobility assets are orchestrated among the separate ground and air plans. Lieutenant General William S. Wallace, Commanding General V Corp, in an interview discussing airlift resources during Iraqi Freedom, stated that although they (Army Engineers) opened a landing zone near his headquarters, it was never used. This is the kind of disconnect that a COMMOBFOR could have prevented by giving the commander of V Corp a specific person to obtain this information from. Under current doctrine, a DM4 could provide the same answer to the Army commander that a COMMOBFOR could give. However, the 90-day rotational DM4 would not have had the experience of building the plan of support to start out with and would not be held to the same accountability a commander would have. Providing a shaping COMMOBFOR, who would remain in place for the duration of the contingency, would mitigate this type of problem.

The current 90-day rotations of DM4s and turnover rate do make it hard for any one commander to shape the forces and policies in place and give that person limited knowledge of how current policies originated. Interviews with staff officers in the CENTCOM CAOC indicate new DM4s generally can grasp the current situation quickly; however, when one considers the rapidly changing rules of engagement and policies for aircraft in theater, it seems a stabilizing COMMOBFOR could remove frustration from the deployed troops. The troops would have a name to associate with the mobility commander and quite possibly a face.

Currently, the way contingencies are executed by rotating forces through the theater creates an even deeper need for a group

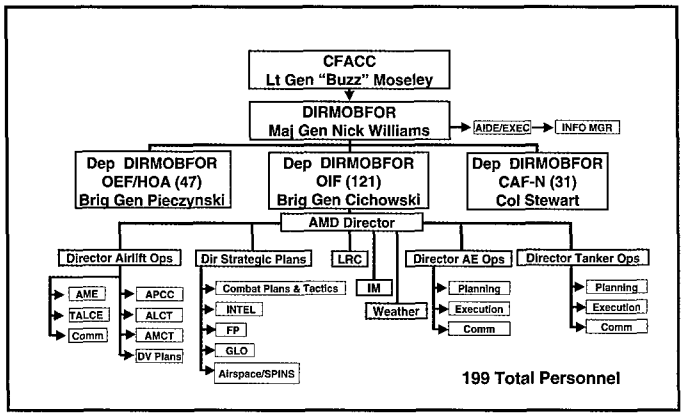

Figure 4. CENTCOM DIRMOBFOR

of forces that are organized into one genre of the Air Force and a need to have a long-serving commander in place. Groupings, such as the Air Mobility Warfare Center, organized to cover all mobility aircraft, indicate that the Air Force has decided this is a compatible group with enough in common that the Air Force will manage them as one body.

The obvious question then would be, why not a combat air force commander? The combat air forces are truly embedded in the air operations center system, and generally, the JFACC and air operations center director are combat air force officers. In reality, the majority of the focus is on combat air force assets within the air operations center system, and rightly so. What a COMMOBFOR would do for the combat air force-centric air operations center is give them a central point for ensuring that mobility forces are being led and optimized by someone with a commander's focus, beyond the air operations center, who is ensuring they are being effectively utilized. An interesting part of the COMMOBFOR would be working the reserve component issues of the Air Force Reserve Command and National Guard assets that normally make up more than half the strategic and tactical airlift assets in the Air Force. Keeping a COMMOBFOR with a working knowledge of these forces and special issues involving the reserve component would aid the total force fight. The addition of a COMMOBFOR would not take the mobility forces away from the JFACC; the JFACC would now have a COMMOBFOR working directly for the JFACC, instead of for the AFFOR (which is generally, but not always, the same person).

The next criteria provide clear commander and subordinate relationships and guidance for probable situations. Doctrine, as currently written, does not build a solid case for clarity of relationships. The current DM4 has coordinating authority with the AMD section of the air operations center as the focus. However, neither of these terms provides a clear or concise relationship. The definition of coordinating authority is an authority generally used for planning, not operations. The change to adopting a COMMOBFOR would provide clarity in the relationships and command structure of deployed forces.

The final test of current doctrine is that it should provide clear control and integration of mobility forces in the joint force commander's plan, with clear designation as to who is responsible for what action, including planning and execution. There should be a clear and concise process for ensuring that mobility missions are properly tasked, planned, and executed. This is the goal of the current system, and great steps have been made to blend

processes and planning staffs to accomplish this task effectively. The integration of mobility forces under the air operations center system of planning and executing an air campaign exceeds any level of previous integration. However, the expertise to ensure mobility assets and missions are used effectively during contingency operations is a strident effort. The current rotational DM4 model is not the optimum when the JFACC and air operations center director remain in place for the duration of the conflict. Furthermore, having two deputies selected for their recent knowledge of airlift and tanker expertise to ensure proper employment with the right mix of forces and expertise in theater would only improve the system.

The creation of the COMMOBFOR is a win-win situation. The mobility forces get a commander to execute the war and lead them in the contingency. The JFACC gets a senior commander for the duration of the conflict to handle all mobility issues legally, unlike the current defacto assignment to the DM4. There is a small price to pay in hiring the two deputies, but this is well worth the benefits derived from this change. The command lines are correct, showing the proper supervision and accountability: JFACC, COMMOBFOR, provisional wing, group, and squadron. This seems to not make much of a change, just adding the COMMOBFOR between the wing and group-level command and the JFACC. What this does is build into existence a relationship that commonly has been in most organizations throughout the history of air mobility operations. Yet, much like the conflict that happened between LeMay, the USAFE Commander, and Kuter, the MATS Commander, the decision on who should command mobility forces can become a political one and, at times of limited resources such as this, be seen as a battle for survival.

If the recommendation to create a COMMOBFOR is viewed as a threat by the JFACC or the air operations center director or even AMC's TACC leadership, then the decision becomes more of a political turf battle, and power, not effectiveness, will make the decision. But if the decision is made based on the COMMOBFOR construct's ability to create effective mobility command and control while maintaining integration and ensuring the joint force commander, through the JFACC, has a commander responsive to the needs, then the COMMOBFOR position is a wise solution.

Conclusion

The lessons learned from history would indicate that post-conflict consolidation always will be appealing but rarely pay the expected dividends and that having a clean chain of command is a valuable tool. Organizing mobility forces can be accomplished either through a specific mission or geographical area or a combination of the two. The main lesson learned from history is that an airman in charge of the air forces is needed, but it is also important to have a commander who understands the missions of the aircraft commanded. Another lesson was that a commander in theater would be more effective. This does not negate the fact that a global view, such as TACC maintains of all strategic airlift, is not more efficient and allows for an efficient worldwide system. However, in a contingency theater, there needs to be a theater commander, much like the lesson learned from command and control of airlift during Vietnam and the Pacific theater of World War II.

Commanding mobility forces is not a simple task, yet, it is critically important to successful execution of combat operations. Tenoso, Desert Storm COMALF, and Brigadier General Rod Bishop are the only two people with COMALF experience during a major theater war and DIRMOBFOR experience in a large-scale contingency. Both agree on the need for a theater air mobility commander to handle theater-assigned and attached forces and provide supervision for strategic forces that transit the theater.[44] Their modern experience is consistent with that of Vandenberg (post-World War II), LeMay (1960s), and General William Momyer (Vietnam), all of whom believed in the necessity for a theater-based commander to orchestrate theater-specific and strategic airlift as effectively as possible.

Recommendations were reflected accurately in the successful COMALF experience of Desert Storm; so why the change to a director from a commander? Was this change a political one, as we have suggested, or was it somehow made in the name of efficiency? While always desirable and acknowledging, it can lead to greater effectiveness. Efficiency must be balanced carefully against the need for effectiveness in a combat theater.

New weapon systems, tactics, and operational requirements often mandate the need for different management practices from those used in the past. As asked earlier, can a DM4 with an exclusively tanker background really decide on the suitability of a C-130 night-vision goggle/dirt airland mission? Likewise, can a DM4 airlifter make the call on how close or beyond the forward edge of battle area a KC-135 flight should proceed to support a strike or search-and-rescue package?

Hence, our proposal: first, a change to the current DM4 doctrine eliminating the rotational function of the role and providing a permanent staff of both an airlift and tanker expert; second, phase or full implementation of the change creating the COMMOBFOR with a rank equivalent to the air operations center director, working for the JFACC and retaining the tanker and airlift deputies. This would provide greater clarity, organization, and operational effectiveness compared to the current ad hoc system, which is relying too much on luck rather than premeditated organization to be effective.

Notes

1. Joint Pub 3-17, IV-3.
2. Joint Pub 3-17, V-5.
3. Betty R. Kennedy, Office of History, *Air Mobility En Route Structure: The Historical Perspective, 1941-1991*, Scott AFB, Illinois: Headquarters AMC Office of History, Sep 93, 3.
4. *Ibid.*
5. Kennedy, 4.
6. Kennedy, 5.
7. Kennedy, 7.
8. Kennedy, 8.
9. Kennedy, 9.
10. Kennedy, 11.
11. Kennedy, 19
12. *Ibid.*
13. Kennedy, 20.
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Logistics Stuff—Five Things to Consider

- The operations/logistics partnership is a target for our enemy—protect it. We always must try to think of an enemy's looking for the decisive points in the partnership. What we want to make strong, they will try to weaken. Where we want agility, they will want to paralyse us. What we can do to our enemy, we can do to ourselves by lack of attention. So all concerned with operations and logistics must protect and care for the partnership and the things it needs for success. This includes *stuff,* information, and people. Also, we must not forget the corollary is just as important: the operations/logistics partnership of the enemy is a target for us; we must attack it.
- Think about the physics. Stuff is heavy, and it fills space. Anything we want to do needs to take account of the weight that will have to be moved, over what distance, with what effort. Usually this all comes down to time, a delay between the idea and the act. If we think about the physics we can know the earliest time, we can finish any task, and we can separate the possible from the impossible. It is crucial to determine the scope of the physical logistics task early in any planning process. Planners must know how long things take and why they take that long.
- Think about what needs to be done and when—and tell everybody. Once we have given instructions and the stuff is in the pipeline, it will fill that space until it emerges at the other end. The goal is to make sure that the stuff coming out of the pipe is exactly what is needed at that point in the operation. If it is not, then we have lost an opportunity—useless stuff is doubly useless, useless in itself and wasting space and effort and time. Moving useless stuff delays operations. Also, priority of order of arrival will change with conditions and with the nature of the force deploying. For example, the political need to show a presence quickly may lead a commander to take the risk of using the first air transport sorties to get aircraft turn-round crews and weapons into theatre before deploying all the force protection elements.
- Think about defining useful packages of stuff. Stuff is only useful when all the pieces to complete the jigsaw are assembled. Until the last piece arrives, there is nothing but something complicated with a hole in it. It is vital to know exactly what is needed to make a useful contribution to the operational goals and to manage effort to complete unfinished jigsaws, not simply to start more. Useful stuff often has a sell-by date. If it arrives too late, it has no value, and the effort expended has been wasted. The sell-by date must be clear to everyone who is helping build the jigsaw. And it is important to work on the right jigsaw first. In any operation, there is a need to relate stuff in the pipelines to joint operational goals, not to single-service or single-unit priorities. It is no good having all the tanks serviceable if the force cannot get enough aircraft armed and ready to provide air cover or ensuring that the bomber wing gets priority at the expense of its supporting aircraft.
- Think about what has already been started. The length of a pipeline is measured in time not distance. There will always be a lag in the system, and it is important to remember what has already been set up to happen later. Constantly changing instructions can waste a lot of energy just moving stuff around to no real purpose. Poorly conceived interventions driven by narrow understanding of local and transitory pain can generate instability and failure in the system.

Group Captain David J. Foster, RAF

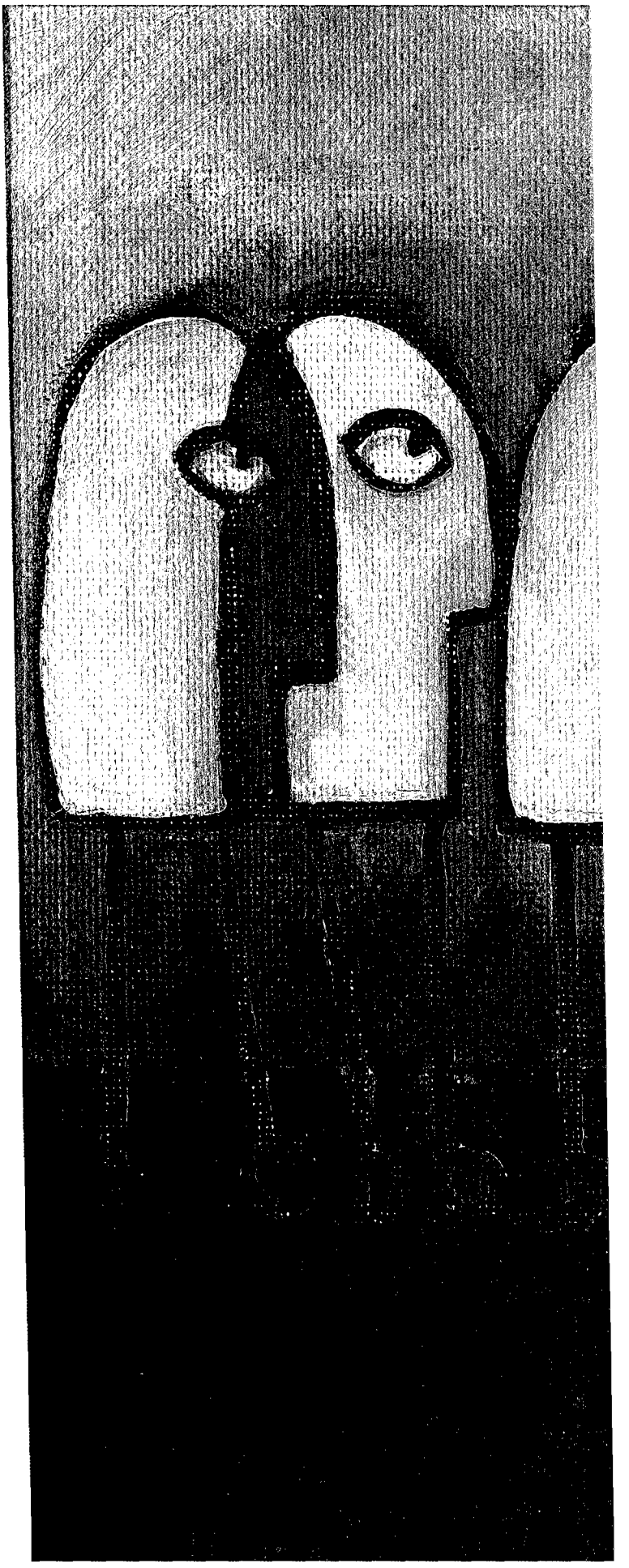
Introduction

Special Feature

The whole idea behind the expeditionary air force is to be able to plan and execute air and space power anywhere on the globe...to do it in the way we train.

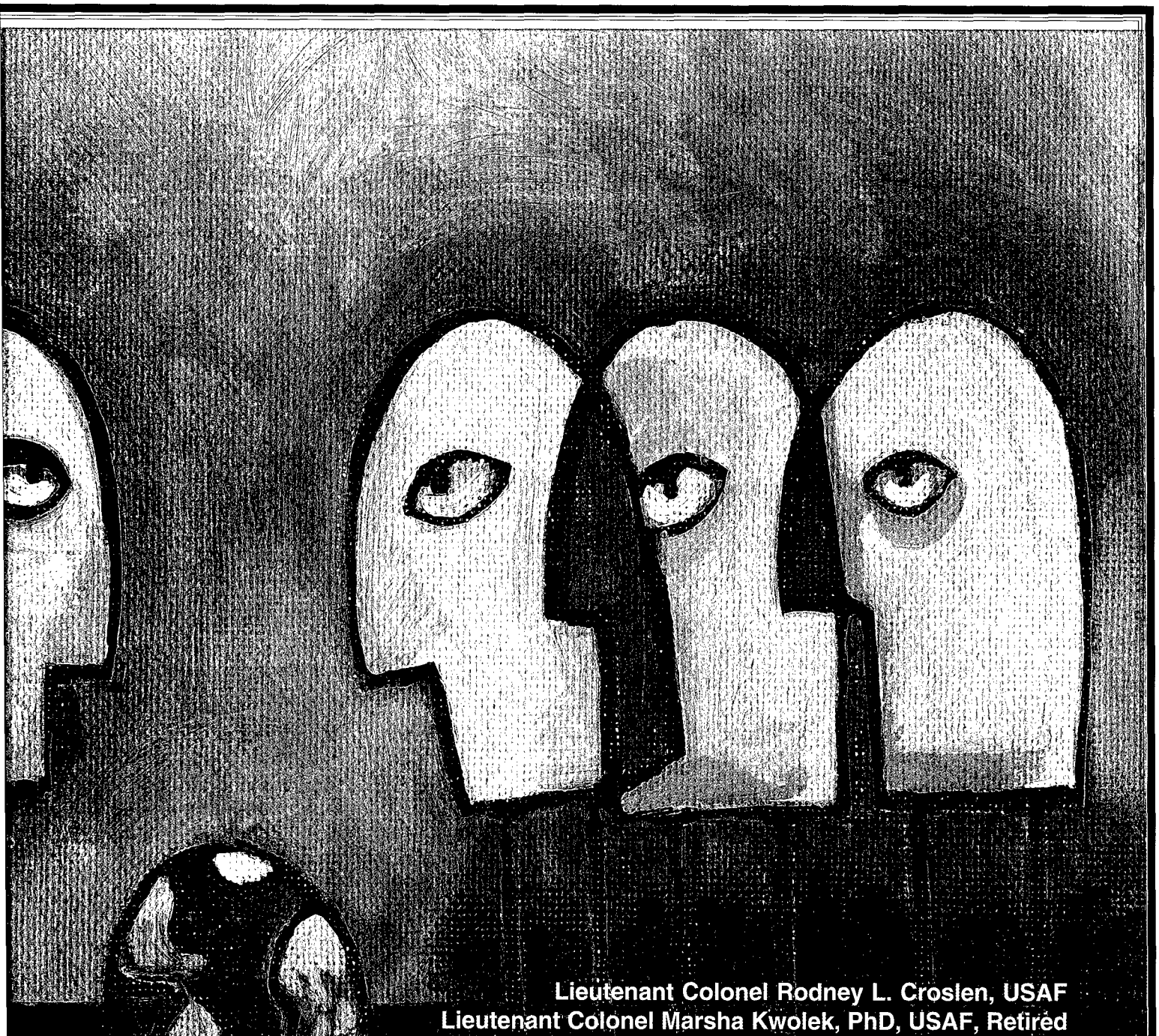
—General John Jumper, USAF

At this point in history, the US military enjoys unequalled combat capability as demonstrated in Operations Enduring Freedom and Iraqi Freedom. These operations were clear examples of the overwhelming capability of a technologically superior force. They also demonstrated the enormous capacity of the US military to establish forward locations for expeditionary operations. Yet, there remain significant areas where the United States can enhance its ability to project forces. Along these lines, senior Air Force leaders have acknowledged the importance of airbases to projecting airpower anywhere on the globe. Recent crises have compelled the United States to project airpower into places where bases did not exist under the control of friendly forces, thereby elevating the emphasis on seizing and opening airbases. The Air Force, together with the other services, now strives to enhance this competency for the purposes of maintaining the capability for strategic reach and power.



Enduring Freedom and Iraqi Freedom highlighted the most recent lessons. These operations highlighted shortfalls or gaps in the Air Force and joint base-support planning process, particularly regarding the planning and organization for opening airbases. These shortfalls revolve around gaps in responsibility, planning, and coordination between ground and air force units. These gaps were the result of inadequate doctrine, planning, and organization for security, task accomplishment, and command and control, predominantly during transition between phases of base opening operations.

To establish the conceptual baseline, the following discussion frames the contextual meanings of the terms doctrine, planning, and organization. As defined in joint publications, doctrine comprises the fundamental principles that guide action. Doctrine is authoritative but does not substitute judgment. It should guide planning and organization. Planning is the dynamic process and method of arranging details to accomplish a specific set of objectives. As a process, military planning integrates ways and means (the who, what, where, and when) to arrange tasks based on desired objectives—the ends. Planning may influence organization of forces at various levels and, vice versa, how forces are organized may influence planning. The term organization refers to the structural arrangement of forces (functions and



Lieutenant Colonel Rodney L. Croslen, USAF
Lieutenant Colonel Marsha Kwolek, PhD, USAF, Retired

Retooling Global Mobility and Forward Presence

Solving the Challenges of Opening Air Bases

capabilities) to accomplish a specific set of objectives. While organization and planning are overlapping constructs, they are different in the sense that process is different from structure. This article addresses each construct separately to highlight the unique influences on each other and on the process and ability of opening airbases.

For the purposes of this article and with respect to Air Force doctrine, the phrase *opening airbases* means those activities included in the initial phase of employing personnel and equipment to set up and operate facilities and systems at a designated location intended to serve as an expeditionary airbase. Those activities include, in no particular order, assessing the airfield, preparing the airfield for future operations, bedding down forces, establishing wing-level command and control, and achieving sortie generation capability. As defined, the construct of opening airbases assumes that the basing area was not under the operational control of US forces. The entry into the location could be a forced entry, typically requiring Army or Marine ground combat forces, or a permissive entry. The forced entry may be the result of a predetermined or notional plan to seize an airfield following or during combat operations. Regardless of entry type, these activities warrant some level of joint or service-specific doctrine, planning, and organization. This article primarily limits the discussion to those issues that relate to the Air Force combat support roles and missions of opening airbases. Air Force combat support forces normally would not take an active role in forced entry.

In setting a roadmap for analyzing the context and interrelationships among the issues with doctrine, planning, and organization, a few guiding questions came to mind on how to frame the solution set. What specific lessons have we learned from past operations? Are those lessons being applied and, if so, how? Is there a viable plan for improvement? What linked doctrine, planning, and organization? Are there any joint issues? Does this affect planning integration with the combatant commands? Is there adequate understanding of the environment in which the change is taking place and a clear anticipation of ripple effects?

A Context for Change

Understanding the air and space expeditionary force (AEF) construct is important to understanding the context of the challenges associated with projecting forces to establish expeditionary airbases in forward locations. The AEF construct is symbolic of the Air Force culture and distinctly affects the way the Air Force plans for deployments and employment of forces. Along these lines, the AEF construct drives the way the Air Force structures force packages for contingencies. The construct has become the framework for presenting forces to the combatant commanders and, similarly, a critical aspect for effective joint planning. The AEF is the construct the Air Force chose to deal with the uncertainty in the timing and number of deployments required to support contingencies worldwide. Understandably, the broad spectrum of instability across the globe and unpredictable nature of conflicts, whether it is the result of state aggression such as Iraq's invasion of Kuwait or the result of ethnic strife in failed states such as Somalia, drives a level of uncertainty in planning. This uncertainty and unpredictability, combined with the challenge of access for basing, increases the importance of having a flexible and responsive base opening capability if the United States is to maintain its current degree of global reach through rapid mobility. It is also critical to maintaining a credible military capability, which is essential to realizing the objectives of the US national security strategy.

The context, which begins with the end of the Cold War, is key to understanding the influences on current Air Force doctrine, organization, and planning processes. The end of the Cold War saw a rise in the number of smaller scale conflicts throughout the world at a time when the United States was undergoing a reduction in defense budgets and a smaller forward presence. From 1985 to 1995, the defense budget declined by 40 percent. Department of Defense (DoD) personnel strength dropped from 600,000 to 370,000, and the number of major overseas bases declined from 39 to 13 forward operating locations.[1] Limited forward presence and more operations meant more deployments for a smaller force. Air Force doctrine evolved and recognized that the military strategy shifted from an emphasis on forward basing to one of forward presence.[2] Forward presence is achieved through the ability to deploy into a crisis rapidly.

Two separate deployment planning processes, one for major theater war and a second informal process for lesser conflicts have characterized the period since the end of the Cold War.

To address the operational deployment requirements for forward presence and speed (for example, bombs on target within 48 hours of tasking), the Air Force developed the AEF concept in 1998 and organized the force (active duty, reserve, and guard) into ten AEFs. The intent of the AEF concept was to "enhance operational responsiveness and provide improved personal predictability and stability in airman deployments."[3] The drawdown of US forces, coupled with the AEF concept, requires the capability to establish airbases in an environment where the US forward presence is limited, so combat support capability is of much greater importance. Air Force doctrine confirms the importance by identifying Agile Combat Support as a competency for the Air Force. Basing is one part of that competency. Some considerations in basing include force protection, logistics, and access. These capabilities are inextricably linked to combat support resources. Additionally, combat support resources are a significant part of the forces deployed into a new base to provide the key linkages for logistical support. To further illustrate this point, Figure 1 shows the amount of tonnage required to deploy support resources for a wing of F-15E aircraft from the 4th Air Expeditionary Wing, Seymour Johnson AFB, South Carolina. Deployment of aircraft

to forward operating locations obviously requires logistical support in the form of airfields/ramp space, supporting infrastructure, supplies (fuel, munitions, water, food, and so on), and the means to deliver supplies.

In addition to the contextual challenges for planning combat support, the system itself is slow. The current deliberate and crisis action planning system relies on a set of tools that allows forces in force packages to build plans. The typical product of deliberate operational planning is known as an operations plan (OPLAN). The OPLAN's associated deployment requirements normally are presented in time-phased force and deployment databases (TPFDD), which track force packages against various identifiers known as unit type codes (UTC). These concepts are foundational constructs for the current planning system.

The current deliberate planning system does not support the Air Force deployment time-line goals for a bare base and sustaining the operational tempo of a typical expeditionary force.[5] Figure 2 compares actual deployment measurements to the goal of having bombs on target within 48 hours of aircraft arrival. The lift requirement and time to prepare support facilities drive the time line. The Air Force must employ 72 C-17 loads to stage a standard Harvest Falcon expeditionary shelter package, which takes 4 days to construct for bare bases.[6]

In addition to being slow, the planning process is fragmented. In the planning process, "Each commodity and its support processes are viewed largely independently.... In this fragmented process, opportunities to develop consolidated support operations...may be missed."[7]

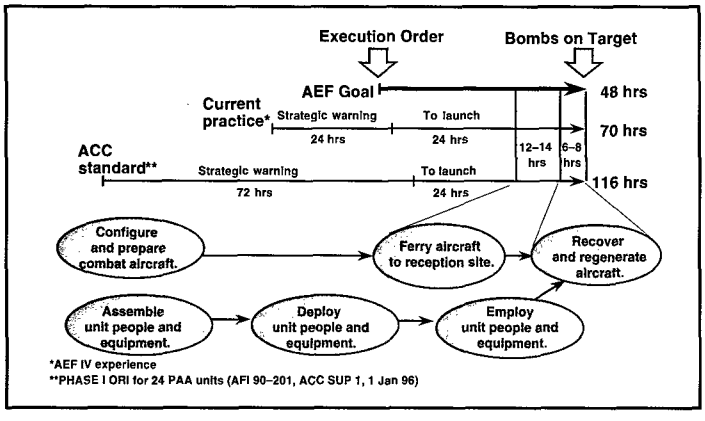


Figure 1. Breakdown of Support for the 4th Air Expeditionary Wing[4]

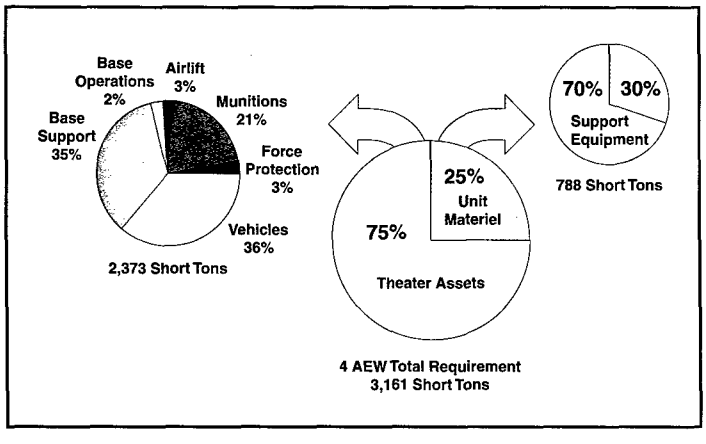


Figure 2. Deployment Time Lines

Article Highlights

Air Force leaders have acknowledged the importance of airbases to projecting airpower anywhere on the globe. Recent crises have compelled the United States to project airpower into places where bases did not exist under the control of friendly forces, thereby elevating the emphasis on seizing and opening airbases. The Air Force, together with the other services, now strives to enhance this competency for the purposes of maintaining the capability for strategic reach and power.

Enduring Freedom and Iraqi Freedom highlighted the most recent lessons. These operations highlighted shortfalls or gaps in the Air Force and joint base-support planning process, particularly regarding the planning and organization for opening airbases.

The best perspective is one that views the emerging initiatives as an evolving solution set focused on transformation within the strategic context. The context for change uniquely influences doctrine, planning, and organization. The lessons from recent operations provided a few pathfinders to spark transformational initiatives. Most notably, adequate doctrine on opening airbases did not exist, but the Services are aggressively working to develop doctrine for opening airbases with a focus on functional integration and better CONOPS. Joint issues regarding base operating support and transition between phases arose in both Iraqi Freedom and Enduring Freedom, but the opening of Tallil AB is a good model for improvement. Planning was slow, difficult, and cumbersome, and organizational constructs were not designed to place the right capability and function in the right place at the right time, but some form of the contingency response group construct, combined with integrated planning, will solve those concerns.

Further highlighting this fragmented process, a July 2001 study by Major Christopher Valle points out that the Air Force actually has two separate deployment planning processes, one for major theater war and a second informal process for lesser conflicts that have characterized the period since the end of the Cold War. The Air Force developed the latter process to achieve the necessary flexibility to deploy personnel to small-scale contingencies and multiple rotational deployments. Valle points out that the Air Force used a separate process, known as the Air Force Palace Tenure program, to manage support force requirements. As combat support requirements grew over the last decade, the informal process only served to fragment existing UTC force deployment packages as the Air Force used a *fair share* approach for allocating requirements to the major commands (MAJCOM). Before Enduring Freedom, as a rule, the Air Force built UTCs to support large-scale conflicts; consequently, the UTCs were too cumbersome or contained an inappropriate mix of capability (personnel and equipment) to support today's requirements for flexible and responsive force packaging. This study highlighted the need to provide detailed manpower and logistics data to planners to support the requirements of the combatant commands.

Similarly, an Air Force Audit Agency study alludes to the lack of consistency in the planning process. The study concludes, "Air Force and command planning personnel did not consistently and accurately assign forces to the AEFs. Further, the Air Force did not adequately manage AEF personnel requirements."[8] The study notes that the numbers of equipment and persons varied from one AEF to the next, with AEF 9 having nearly twice as many persons as AEF 10—24,755 compared to 11,154. Additionally, the Air Force did not always use the pre-identified UTC force packages in the Air Force Worldwide UTC Summary. In April 2001, the Air Force Deputy Chief of Staff for Plans and Operations issued the revised Air Force Instruction 1-400, which required corrective action.[9]

This is not to say that the Air Force expeditionary construct is broken entirely but rather to point out some specific areas where the construct needs improvement and the context that one must consider. Additionally, this discussion serves as a baseline for better understanding the challenges with opening airbases. The AEF construct was a transformational approach designed to address operations tempo, but the transformation did not go far enough. The force packages designed for major theater war in Europe with forward basing are too bulky and inflexible to support the requirements in today's uncertain strategic environment with a much less forward presence. Retooling the force packages will require an evaluation based on capabilities. The planning system is not sufficiently adaptive and responsive. The planning process is fragmented and relies on multiple pathways, some informal. The doctrine, planning, and organizational constructs must evolve. The best place to start is by drawing upon the lessons from recent conflicts.

Lessons: Doctrine, Planning, and Organization

The Air Force considers the operational execution of rapidly generating from seized airfields during Iraqi Freedom a success because of the enhanced combat effectiveness and support the Air Force provided to the other services.[10] The underlying implication is that the Air Force used the lessons of Enduring Freedom to implement improvements that it incorporated into planning and execution for Iraqi Freedom.

Doctrine

Doctrine generally should identify the best way of employing forces based on time-tested principles. Current doctrine falls short of identifying how best to employ Air Force capability to open airbases. As noted earlier, the absence of guidance contributed to the challenges with opening airbases in Enduring Freedom and Iraqi Freedom. Understandably, with greater uncertainty in terms of the location of future crises and threats, becoming expeditionary has become a critical component of US national security strategy. As the 2002 US National Security Strategy (NSS) notes, the war in Afghanistan highlighted the need to transform maneuver and expeditionary forces to operate in environments that require extended logistics in remote locations with little forward presence.[11] The current NSS and force posture dictate the need for a basing capability that facilitates global access. Since doctrine presumably provides guidance on the best way to do things, that is where the discussion will start.

Several doctrine publications address areas relevant to planning and organizational issues. For example, Air Force Doctrine Document (AFDD) 2, *Organization and Employment of Aerospace Force*, states, "The Air Force component in a joint force will organize as an aerospace expeditionary task force (ASETF)." The document also specifies that the ASETF is a scalable and tailorable organization. This essentially means that ASETFs shall be adaptive and flexible. Another document, AFDD 2-6.3, *Air Mobility Support*, discusses the forces required and the sequence of capabilities for establishing airbase operations. However, AFDD 2-6.3 does not address adequately the initial steps of opening airbases. It discusses packaging capabilities as *modules* for deployment. The modules are grouped under a broader concept referred to as the Global Air Mobility Support System (GAMSS). GAMSS forces are comprised of five force modules: (1) onload, (2) contingency tanker task force, (3) stage/en route, (4) hub/transload, and (5) spoke/offload. The AFDD says "each force module is comprised of the UTCs, personnel and equipment to sustain bare base operations" but contradicts itself by stating that base operating support forces are deployed after GAMSS forces. In other words, the contradiction exists because sustainment requires base operating support, yet the GAMSS concept presumes that the five modules do not contain base operating support yet can provide sustainment capability. The AFDD goes on to say that the supported combatant commander should provide base operating support.[12] Clearly, the underpinning thought for the document assumes permissive entry into a location that does not require airfield assessment or repair capability that resides in base operating support.

Consistently, the published unclassified set of lessons learned identifies the need for better doctrine. Following Enduring Freedom, some Air Force agencies identified an opportunity to generate better doctrine to improve how well training and deployment requirements are integrated in organizational constructs. For contingencies within the last 6 years, the Air Force divided itself into chunks of capability deployed forward as AEFs.

> These AEFs had little or no opportunity to train and develop as a cohesive unit prior to arriving at their deployed location. In fact, 65 to 100 locations were tasked to provide personnel to create and sustain many of the forward operating locations (FOL) the Air Force currently supports [for Enduring Freedom and Iraqi Freedom].... This is referred to as *Swiss-cheesing* the force.... Additionally, creating an ad hoc combat support organization has other adverse affects [effects] as well."[3]

An additional doctrinal issue discovered during Enduring Freedom is the lack of joint doctrine on cross-service base operating support (BOS). For example, Air Force combat support units found it extremely difficult to determine BOS requirements for special operations units because of their high tempo and secrecy regarding numbers of persons and destinations. The differences between Army base operating support and Air Force BOS concepts also became an issue. The Air Force integrates base operating support into the AEF and air expeditionary wing structure. Army units have a significantly smaller BOS capability in the active forces and rely on reserve support battalions. The differences translated into differing views on the scope of support.

> When operations were joint forces, or in cases where the Army took over from the Air Force, Army units generally did not provide support until after all preparations were in place. Deployment orders failed to address base operating support and were unable to get support units in these initial locations early enough to provide adequate support.[14]

Other services' reliance on Air Force beddown capability and quality-of-life assets, when collocated with Air Force forces, strained Air Force assets.[15] Another joint interaction issue is the need to address the command and control transition from ground forces, which seize airfields, to airmen, who stand up and operate airfields. The bottom line on doctrinal issues is as Task Force Enduring Look concluded, "Solid doctrine, deployment and employment procedures, and strict adherence will provide the necessary framework to reduce the confusion and enhance mission capability."[16]

Planning

Operation Allied Force is a case where planning was made more difficult because of the lack of a planning template for matching forces to capability requirements. While each functional area in US Air Forces in Europe identified requirements in the Joint Operation Planning and Execution System, only 40 percent of the TPFDD requirements contained adequately identified standard (versus nonstandard, piecemeal, or tailored) UTCs. The confusion resulted in people being dual tasked and "deployed through two different tasking vehicles," which made it difficult for the planning staffs to determine the impact to OPLAN requirements.[17] Several years later, similar challenges would occur in Enduring Freedom.

The Air Force experienced a number of challenges in planning for the movement of forces into Afghanistan to support base openings. During the initial efforts of Enduring Freedom, movement of forces began before an OPLAN or TPFDD was completed.[18] The absence of established plans while personnel and equipment were flowing complicated command and control efforts and operational control alignment. Similarly, while the timing of US Central Command's (CENTCOM) movement of headquarters forces from MacDill AFB, Florida, to Prince Sultan AB, Saudi Arabia, most likely was driven by higher direction and circumstance, the timing may have contributed to some of the planning challenges. In October 2001, the Air Force opened two expeditionary bases in Afghanistan to provide air support for ground operations. Ground forces executed the early planning for initial operations in northern Afghanistan, absent any coordination with the air component. By the time the air component became involved, it was clear that basing would be a challenge. "In October 2001, a requirement emerged, an order of magnitude increase, for close air support that was unfeasible given the existing layout of accessible bases."[19] The geography alone served the purposes of the enemy's antiaccess wedge against coalition capabilities. Planners were just beginning to think about forced and permissive entry for the purposes of establishing airbases. During that time, given that it was a ground operation with evolving air support, it was unclear who should take the lead in establishing a basing strategy for northern Afghanistan. The US Air Forces CENTCOM (CENTAF) Combined Air Operations Center accepted responsibility and began to aggressively work with CENTAF A4 staff and Headquarters Air Combat Command staff to develop a basing strategy. In addition to planning challenges related to Air Force units, joint interaction generated a different set of planning challenges.

The current NSS and force posture dictate the need for a basing capability that facilitates global access.

Joint operations with special operations forces (SOF) created a unique set of planning challenges during Enduring Freedom that may not be obvious from studying earlier conflicts. The use of SOF in Enduring Freedom and Iraqi Freedom was an order of magnitude greater than that of Operation Desert Storm. SOF operations typically require special requirements and control of information regarding when, where, and how many troops will arrive on a specified site. This creates challenges in planning the right support for beddown, daily operations, base growth, and sustainment. In Afghanistan, "Those units accompanying special forces units conducting site surveys often had a difficult time completing detailed surveys due to the myriad of mines and UXOs [unexploded ordnances] scattered throughout the location."[20] These were just a few of the challenges in Enduring Freedom.

In a July 2003 briefing to the Senate Armed Services Committee, General Tommy R. Franks, commander of US CENTCOM during Enduring Freedom and Iraqi Freedom, specifically mentioned that planning was cumbersome in Iraqi Freedom.[21] Similarly, the Task Force Enduring Look review concluded, "Time-compressed adaptive planning, delayed

coordination, and the absence of dedicated, tailorable, contingency-response planning contributed to difficulties in supporting the initial bases with follow-on conventional forces."[22] Additionally, the Air Force civil engineering community discovered that predeployment information was fragmented and difficult to acquire. Airbase planning programs such as GeoBase and GeoReach, which were accessible during most of the conflict, were not available for early deployments. Additionally, initial site surveys, current base support plans, maps, runway information, or data on existing facilities and utilities for candidate-basing locations were difficult, if not impossible, to locate.[23] In almost every case, assumptions that utilities would be operational on seized airfields were wrong.[24]

On the other hand, the use of automated expeditionary site survey tools, such as GeoReach, proved beneficial in rapidly adjusting plans during execution of Iraqi Freedom beddowns. Beddown site selection and planning was reduced to a matter of hours instead of weeks.[25]

Organization

Enduring Freedom and Iraqi Freedom provide several lessons on how to derive a better organizational construct for opening airbases in the most expeditious and logical manner. Of the functional areas affected, the ones that stand out are civil engineering and airfield operations (AO). During Enduring Freedom, the Air Force discovered that the AO capability was not part of the core UTC package.[26] Additionally, the lessons of Enduring Freedom and Iraqi Freedom revealed that the Air Force needed an enhanced capability for airfield mine clearing. Army combat engineers initially cleared munitions from airfields, but the Army engineers were not aware of the need to establish clear zones for airfield operations. Hence, the Air Force initially was stuck with unusable airfields because of inadequate munitions clearance capability, particularly subsurface mine clearing capability.[27] In November 2001, as coalition ground troops seized the airfield at Mazar-e-Sharif, Afghanistan, they realized the bombing campaign had rendered the runway and airfield operations facilities unusable because of craters and unexploded ordnance and other explosive devices. Airfield operations and civil engineer personnel were called upon to make the airfield usable. The challenge was getting Air Force personnel, heavy equipment, and supplies in place when no reliable secure land route was established. Eventually, the Air Force team was able to open the runway within 10 days of seizing the area.[28] While this effort was a success, the event awakened the Air Force to the challenge of opening airbases in remote locations and drove the creation of airborne engineer units in the Air Force. The airborne engineer units were formed from elements of Air Force combat engineer units known as RED HORSE (Rapid Engineer Deployable, Heavy Operational Repair Squadron, Engineer) teams. The first use in Iraqi Freedom of airdropped airfield repair teams, Airborne RED HORSE (ARH), was generally successful. The Air Force deployed three teams of 35 combat engineers to repair damaged airfields. However, the combatant commands' unfamiliarity with ARH made it difficult to push the capability into the war plans.[29] This failure is related to issues with joint doctrine, coordination, and planning between components and combatant commands.

Tallil—The Case That Ties It All Together

The dominant thinking for agencies that have studied this problem is that the opening of Tallil AB, Iraq, is the best example from which to draw lessons. The following discussion, which supports the Tallil claim as *best example*, is based on information presented at the Combat Air Forces (CAF) and Mobility Air Forces (MAF) Commanders Conference.[30] Tallil AB is located in the former southern no-fly zone near An Nasiriyah, Iraq. Before US occupation, the base was essentially nonoperational. US operations denied the Iraqis use of the airfield despite the absence of airfield bomb damage. Subsequently, CENTCOM initiated a joint effort to seize and open the base for coalition forces. On 22 March 2003, the Army's 1st Brigade Combat Team (BCT), 3d Infantry Division (ID), seized the airfield 1 day after crossing the Iraqi border. The air mobility liaison officer was embedded with the seizure force. The initial base opening forces deployed into Tallil by convoy. The special tactics team (STT) and tanker airlift control element (TALCE) arrived on 23 March and provided air traffic control and conducted a landing zone assessment. The Army unit transitioned control of the airfield to the TALCE commander on 23 March. The assessment team completed its airfield assessment on 24 March. During the next 2 days, Air Force and Army units worked together to resolve a disconnect in planning for perimeter security. The 1st received orders to leave the base but was later replaced by the 1st BCT, 41st ID. During 25 and 26 March, combat engineers cleared airfield obstructions and ensured the airfield was ready for the first US aircraft to arrive. On 27 March, additional TALCE forces arrived on the first US C-130 aircraft to land at Tallil. The 820th Security Forces Group advanced team arrived on 28 March to assess long-term force protection requirements and establish a more robust communications capability. The first A-10 combat mission flew on 29 March. The AEG staff and remaining 820th forces arrived on 30 March, and portions of the base opening forces began to redeploy as early as 11 April. As a recap, the Tallil case was a success in joint planning and execution of base opening activities. The organizational construct worked well. The Air

Enduring Freedom and Iraqi Freedom provide several lessons on how to derive a better organizational construct for opening airbases in the most expeditious and logical manner.

Force team contained capabilities for airfield assessment, initial base opening, and group-level command and control. Air Force units included elements from the 720th STG (air traffic control), 621st Air Mobility Operations Group (airfield assessment), 621st TALCE (airfield operations), 820th Security Force (force protection and communications), and the 407th AEG staff (command and control). The follow-on forces included an A-10 Air Reserve wing from Whiteman AFB, Missouri.

The key lessons are as follows:

- The assessment teams and STT were key to bridging the seizure and opening phase.
- Including air mobility liaison officers with seizure forces facilitated the communication of field data and situational awareness to assessment teams.
- The STT provided initial runway assessment and air traffic control for follow-on forces.
- The early identification of the base mission was critical for opening setup.
- The involvement of the provisional wing and group leadership is important.
- The assessment team and the TALCE provided the throughput velocity and essential mobility expertise to the combined force air component commander (director of mobility forces) and Transportation Command (Air Mobility Command [AMC]).
- Having senior Air Force leadership (in the rank of colonel) is critical to opening an airbase. The senior leader provides liaison and expertise to ground forces and ensures appropriate air force situational awareness.
- Force protection forces must flow in early to replace seizure of ground forces. This means ensuring force protection units gain the appropriate TPFDD priority.
- Some base opening scenarios will require RED HORSE runway repair expertise, because the Army's light airfield repair unit lacks expertise to repair major damage to runways.
- The contingency response group (CRG) construct needs tweaking. CRG originally was conceived as an early-in and early-out force, but the Tallil, Tirana, and Bashur experiences demonstrated that portions of the capability will need to stay in place longer.[31]

With respect to the mission of opening airbases, there are opportunities to enhance doctrine, planning, and organizational constructs. Enduring Freedom and Iraqi Freedom provide good lessons from which to develop the solution set. Fortunately, the Air Force and the other services are aggressively working on developing solutions.

There are a number of emerging concepts to place into the solution set. The short list of initiatives includes enhanced Agile Combat Support, force modules, global CONOPS, and Eagle Flag. The Air Force and Army are working jointly on the solution set, especially in the area of joint doctrine for seizing and opening airbases. Also, the SEABEES, the Navy's construction battalion, are involved in developing solutions based on their experiences in Enduring Freedom and Iraqi Freedom. More important, the solution set addresses enhancements to doctrine, planning, and organizational constructs.

Doctrine

As of February 2004, Air Force doctrine did not address the requirements, the best way, of opening airbases. However, senior military leaders recognize this shortfall and have discussed the importance of treating opening airbases as a critical competency within doctrine. The existing doctrine does provide a useful baseline. Currently, published doctrine discusses six core competencies. Two of the six competencies relevant to this discussion are Agile Combat Support and rapid global mobility. Rapid global mobility highlights the importance of positioning military forces and capabilities for strategic agility and speed in deployments. Agile combat support emphasizes the need for flexible responsive support systems, covering those support systems critical to opening airbases. However, the doctrine fails to mention opening airbases. Opening airbases is critical to building up forces to gain and expand the strategic initiative.

In addition to addressing opening airbases as a competency, doctrine should address the best way to employ forces. In his 1997 School of Advanced Airpower Studies thesis, Major Patrick Smith examined whether or not basing of expeditionary forces should be a sequential or parallel process. The primary question is which method delivers the best mix of capabilities in the most opportune time. Smith concludes that the parallel process is best if this means capabilities are integrated within force modules. Additionally, Smith examines whether basing problems are the result of the Air Force's doctrinal shortfalls related to time or the physical challenges caused by the complexities of deploying a high-tech, heavy capability forward to overseas locations. By physical challenges, he means the challenges of ensuring the base infrastructure (runway, parking ramps, and so on) can handle the physical, operational demands of the assigned weapon system and the availability of the real estate. These issues have been targeted in the evolving solution set, particularly in terms of doctrine and adaptive planning.

The Air Force is preparing to update its published doctrine to reflect the lessons learned opening airbases. The Air Force Doctrine Center has produced a number of draft documents that are in coordination with Headquarters Air Force and the Army.[32] In addition to the development of doctrine, the Air Force is preparing to publish a number of documents that describe CONOPS for base opening and related processes. The October 2002 draft Global Mobility Task Force CONOPS provides a reliable perspective on the best way to posture capabilities to open airbases under a range of scenarios. The CONOPS describes scenarios in which the US military would be required to seize bases in a nonpermissive environment or simply move forces into position in a permissive environment. The CONOPS lays out an approach to sequencing forces for rapid airfield assessment and preparation of follow-on forces in both environments. Forces also may be inserted by airdrop (plane or helicopter) or overland.[33] This is a significant shift in thinking for Air Force combat support forces, but it became a reality with use of the ARH. New CONOPS and doctrine require new planning, but changing planning constructs requires more thought about tradeoffs among competing objectives.

Planning

A combined RAND and Air Force Logistics Management Agency (AFLMA) study provides greater clarity on the impact of various

solutions by discussing the tradeoffs among competing objectives for planning expeditionary support. The study considers several variables or factors such as time, cost, deployment footprint, risk, flexibility, and sortie generation, which are all important in assessing tradeoffs. For example, prepositioning assets reduces time but may increase risk and reduce flexibility in choosing courses of action in various theaters of operation. In the final analysis, the RAND/AFLMA researchers conclude that a quantitative model is not available to assess tradeoffs; therefore, decisionmakers must use their best judgment.[34] The primary point is that there are few easy answers in tailoring capabilities for a wide range of missions, and tradeoffs will always exist. Planners simply have to use their best judgment based on experience and available information, which will exist in doctrine and other sources.

What is needed is the movement toward better joint planning where the military maximizes the potential of each player rather than its being perceived as a turf issue.[35] Front-end planning will reduce the complexities and challenges for each service and facilitate jointness. With the current DoD transformation focus on net-centric operations and systems, it only makes sense that the Services would capitalize on automated systems to enhance planning. Several automated systems already exist. One automated system, the Base Capability Assessment Tool (BCAT) compares planned sortie-generation requirements (from the ATO) to a base's capability to generate sorties.[36] In this capacity, BCAT serves as a useful tool in assessing the impact of varying force configurations over time as forces are deployed sequentially or in parallel. The Deliberate Crisis Action Planning Execution System provides the capability to modify TPFDDs quickly. Automated expeditionary site survey tools, such as GeoReach, offer the capability for rapid readjustment of basing plans. GeoReach allows planners to assess and develop 75-percent solutions when used with the Logistician's Capability Assessment Tool (LOGCAT) and TRANSCOM's Port and Airfield Collaborative Environment program.[37]

To capitalize on available opportunities to improve planning, the RAND/AFLMA study recommends organizational and process changes. The study proposes institutionalizing a cross-functional team at the Air Staff level to review and integrate functional planning. Functional integration is occurring. For example, to address some of the planning challenges, the Air Force installations and logistics community is doing the following.

> ...refining the site survey process by consolidating MAJCOM and AFS [Air Force specialty]-specific survey checklists. Additionally, GeoReach is being consolidated with LOGCAT, the AMC Site Database, and other databases into a single package. As part of this initiative, site survey teams have been redefined to ensure that the right mix of personnel are assigned and to eliminate redundant site visits. As part of this refinement, all site survey teams will include engineers; in fact, new force packaging concepts will include engineers on the initial beddown teams.[38]

In addition to functional integration of the planning process and systems, senior military leaders have come together on several occasions to drive improvements from the highest levels in the Services. For example, senior Air Force officials discussed a set of solutions during the 2003 CAF and MAF Commanders Conference. These solutions include:

- Picking a designated boss for each phase.
- Identifying the expeditionary mission support group and AEW commanders and moving them forward as soon as possible.
- Developing rules of engagement for *handoff* at each phase.
- Making the commander of the first base opening element responsible for completing assessments for mobility airland operations and calling it forward.
- Ensuring the TALCE supports the initial airbase commander and directs the airland flow.[39]

However, again, the changes to doctrine and planning require changes to the organizational construct to realize the full potential of transformation.

The Air Force is applying a *force module* concept as the construct or tool to provide the proper organization and flexibility for tailoring and deploying capability to open airbases.

Organization

The EAF concept doesn't change how the Air Force employs forces, but it does change how the Air Force organizes to present forces to the theater CINCs.

—Air Force Studies and Analysis Agency

The 2001 Quadrennial Defense Review captured the essence of where the Air Force is headed in terms of being able to present a task force to the combatant commanders.

> To better meet future warfare challenges, DoD must develop the ability to integrate...forces capable of responding rapidly to events that occur with little or no warning. These...forces must be scalable and task organized into modular units to allow the combatant commanders to draw on the appropriate forces....They must be not only capable of conducting distributed and dispersed operations but also able to force entry in antiaccess or area-denial environments.[40]

The Air Force is applying a *force module* concept as the construct or tool to provide the proper organization and flexibility for tailoring and deploying capability to open airbases. Many of the combat support functional or skill areas are affected by this effort. Some agencies are referring to the force module concept as a playbook, which will provide combatant commanders the capability to better manage forces required for

opening and establishing forward bases. According to Major General Peppe, formerly head of the Air Force Expeditionary Center, "The key to the playbook is matching the appropriate people and equipment into 'force modules' designed to...allow a combatant commander to assemble force to open and build up an airbase in an expeditious manner and in a logical sequence."[41]

Joint guidance defines a force module as :

> ...a grouping of...forces, with their accompanying supplies...to sustain forces for a minimum of 30 days. The elements of force modules are linked or are uniquely identified so that they may be extracted from or adjusted as an entity in the Joint Operations Planning and Execution system databases to enhance flexibility and usefulness of the operation plan during a crisis.[42]

The force module concept in and of itself is nothing new. Air Force Civil Engineering personnel have been studying the concept since at least 1989 and have used the construct to frame several initiatives to improve UTC configuration for limited tactical and strategic lift.[43] For example, in 1997, Air Force civil engineers restructured their largest UTC into six modular task-organized force packages.[44] The smaller modular units simplified presentation of engineering capability for the combatant commands. What is important is that senior Air Force leaders recognize the importance of presenting force modules as a tool for the combatant commanders. According to the October 2002 draft of the Global Mobility Task Force CONOPS.

> When these capabilities are presented, in part or in whole, to meet joint force commanders' requirements, these capabilities are presented, in accordance with Air Force doctrine as AETFs. As missions change in these theaters, the composition of these AETFs and the capabilities within them will evolve to best meet the needs of the combatant commanders.[45]

Additionally, the CAF and MAF conferees discussed the minimum set of required capabilities for opening airbases, which consist of the abilities to:

- Assess the airbase,
- Establish minimum operating strip,
- Protect the forces,
- Provide initial command and control,
- Conduct airfield operations,
- Establish communications,
- Handle cargo and passengers, and
- Receive and beddown initial forces.[46]

The Air Force recognizes the importance of sequencing the right capabilities at the right time. The force module construct for opening airbases is designed around five phases, which fall under Air Force purview, as identified in the list below.[47]

- Opening the base: the first Air Force units on the ground to assess and prepare the airfield for operations.
- Establishing wing-level command and control under an AEW.
- Establishing the base with additional expeditionary combat support forces.
- Generating the mission.
- Bringing in remaining forces to operate the base.

Phase 1, opening the base, has two segments. The first segment involves an initial site survey with a small team to assess the primary requirements, such as force protection, engineering, and airfield operational requirements for opening the base. The second segment involves deployment and employment of the force modules for opening the base. This segment is conducted in three steps: opening the runway, opening the remaining airfield, and opening the remaining facilities to support beddown of the wing command and control module.[48] The Air Mobility Warfare Center generally describes the phases as follows. The first phase provides the capabilities to open the base, regardless of the follow-on mission type. These forces provide the initial capabilities for command and control, communications, force protection, cargo/pax processing, airfield operations, and reception and beddown of forces and follow-on modules. These forces open a base that may support any service or nation. The second phase provides the wing-level command and control capability. Additionally, this module contains the deployed wing command and control structure for the maintenance group, mission support group, operations group, and medical group. More robust and secure communications and intelligence capabilities arrive in the third phase. The third phase provides limited forces to bring the base to an initial operating capability that includes capabilities designed to support most missions or weapon systems. The arriving force modules extend and then replace capabilities within the *open the airbase* and *command and control* modules to provide the earliest capability to operate the primary mission. The modules also provide capabilities to build and modify support infrastructure such as fuel distribution systems, maintenance shelters, tents, and electrical distribution. This phase establishes 24-hour mission operations capabilities and enhances force protection and communications.[49]

According to the Air Force Chief of Staff, "We train our operators at Red Flag, and we have for years—since 1975. Now that we are in a different world, it's time to start training our mission support elements that get us to where we need to go, that set up in distant places and keep (the Air Force) operating."[50] To prepare combat support forces to operate under this enhanced construct, the Air Force has established a new expeditionary training program called Eagle Flag. Its purpose is to give commanders and their units a chance to focus on the application of skills associated with establishing an airbase at an austere location to the point of initial operating capability, enabling the airbase to receive and generate mission capable forces. The target leaders are wing, group, and squadron commanders. The expectation is that key personnel already are aware of the relevant doctrinal and planning concepts.[51] Eagle Flag provides the opportunity to practice expeditionary combat support skills in a mock environment based on the challenges faced in opening airbases for Enduring Freedom and Iraqi Freedom. The current concept involves deploying a combat support team into a semipermissive environment using force modules from one or more bases to open and establish an expeditionary operating location within 9 days of deploying to the training site at Fort Dix, New Jersey. As of February 2004, three teams had been trained.[52]

The Air Force has developed a plan for identifying and assigning specialized base opening force packages for each specified combatant command. These force packages are organized day-to-day as contingency response groups. For the initial step of conducting site surveys for a base opening, each

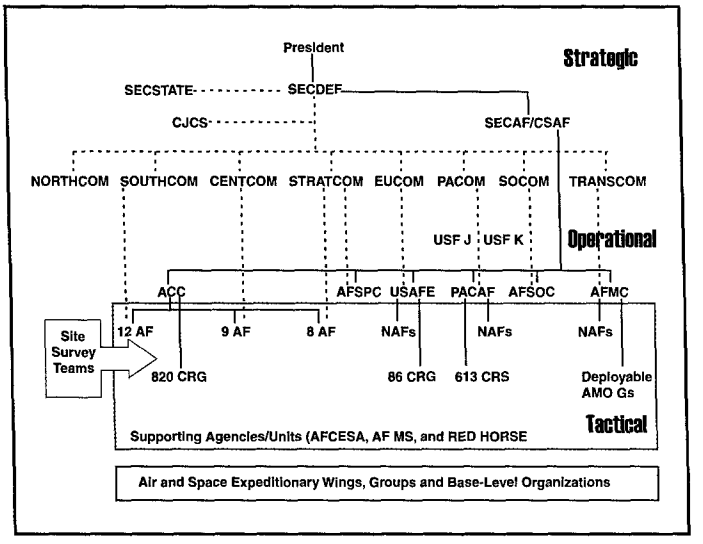


Figure 3. Site Survey Teams Command Relationships[53]

Air Force component command will have a program office responsible for site survey planning and execution. Additionally, the program offices will orchestrate execution of site surveys in concert with AMC and supporting agencies. Figure 3 identifies the command relationships.

The Air Force intends to transform the CRG construct to support the base-opening mission. However, questions remain about the best way to transform. For example, should the mission scope be limited to airbase opening only? Should the capabilities remain in place at the deployed location? Are there opportunities to integrate capabilities with Army, Marines, and SOF units? During the writing of this article, there was no evidence available to suggest that the Air Force has resolved these issues. However, there are clear indications that the Air Force is working these issues. For a truly joint effort, the Air Force and Army should integrate BOS capabilities for base opening into an organizational construct similar to CRGs. Integration will eliminate most of the BOS issues that arrive during transition. Once employed, the capability should remain in place until adequate sustainment forces arrive. The capability should not be limited to opening airbases, but this should be a key competency. To support this organizational construct, the Services will need to update doctrine and training.

In addition to enhancing the organizational construct for CRGs, the Air Force should better integrate the CONOPS for ARH. This should be done through integration with joint doctrine and integration of functional planning. The ARH CONOPS requires engineers to deploy into austere locations rapidly, assess airfield capabilities, prepare helicopter or aircraft landing areas, clear obstacles, install emergency airfield lighting systems, and make expedient airfield damage repairs. They must also test for potable water sources, perform expedient force protection construction, clear explosive hazards, provide fire rescue and emergency medical services, and assess potential nuclear, biological, chemical, and toxic industrial hazards.[54]

Enduring Freedom and Iraqi Freedom demonstrated that deployments are sometimes significantly different from simply picking a large combat support UTC of more than 500 people and deploying force packages by air to an austere location. The force modules aid in streamlining logistics and reducing the initial footprint required on the ground. In comparison to other operations where the United States had to open airbases in the 1990s—Rwanda, Kosovo, Bosnia, and Haiti—Enduring Freedom and Iraqi Freedom vastly accelerated the need for new bases. "We've had to open up 38 new bases since September 11 terrorist attacks."[55] Air Force Chief of Staff General John Jumper agreed. "It was inside of a month after 9/11 [that] we were doing combat operations into an entirely landlocked nation."[56] He saw this as a continuation of the transformation that started as the Air Force shifted to the AEF construct.

Conclusion

Given the US forward presence strategy and limited strategic lift capability, the key to knocking the door down (forced entry) and killing targets is the ability to achieve global reach through expeditionary basing and sustainment. Opening airbases is critical to building up forces to gain and expand the strategic initiative. Effective base opening requires the synergistic effects of applying both ground and air forces while transforming from joint interoperability to exploiting the synergy of joint interdependency. Enduring Freedom and Iraqi Freedom demonstrated the enormous capacity of the US military to establish forward locations for expeditionary operations. These operations highlighted significant areas where the United States can enhance its ability to project forces. The Air Force, together with the other services, is on track to enhance this competency for the purposes of maintaining the capability for strategic reach and power.

The best perspective is one that views the emerging initiatives as an evolving solution set focused on transformation within the strategic context. The context for change uniquely influences doctrine, planning, and organization. The lessons from recent operations—in which planning was slow, difficult, and cumbersome, and organizational constructs were not designed to place the right capability and function in the right place at the right time—provided a few pathfinders to spark transformational initiatives. Some form of the CRG construct, combined with integrated planning, will solve many of the planning concerns. Most notably, while adequate doctrine on opening airbases does not currently exist, the Services are aggressively working to develop doctrine for opening airbases with a focus on functional integration and better CONOPS. Although joint issues regarding base operating support and transition between phases arose in both Iraqi Freedom and Enduring Freedom, the opening of Tallil AB offers a good model for improvement.

Ultimately, the Air Force, in concert with the other services, needs to continue refining the qualities and characteristics of the planning and organizational tools and capabilities for opening airbases. Structuring the force modules for various operations begins in the planning phase. Properly sized and sequenced modules should be established to provide full spectrum support based on the size, duration, risk and operating environment. Properly sized means scaled to provide the right capability for the task, no more, no less. Properly sequenced means prioritized based on time and need to establish essential services for each phase to maximize combat capability deployed forward.

The solution set is evolving. As such, transforming combat support capability for opening airbases into a highly responsive

and adaptive capability requires evolutionary thinking and approaches to deal with the new strategic environment. This requires rethinking doctrine, planning, and organization under the AEF construct. Eagle Flag, Airborne RED HORSE, contingency response groups, Agile Combat Support, and global mobility task force CONOPS are excellent constructs moving the US military in the right direction.

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At the time of writing, Colonel Croslen was a student at the Air War College and Colonel Kwolek was member of the Air War College faculty. Now retired, Ms Kwolek is the Deputy for Research and Electives to the Associate Dean for Academic Programs, Air War College. JL★

notable quotes

...I have dared to look into the future, but in so doing I have based my views, not on idle imaginings, but upon the reality of today, out of which grows the reality of tomorrow.

—Giulio Douhet

Thinking About Logistics

Lieutenant Colonel James C. Rainey, USAF, Retired
Cindy Young

Defining Logistics

The word logistics entered the American lexicon little more than a century ago. Since that time, professional soldiers, military historians, and military theorists have had a great deal of difficulty agreeing on its precise definition.[1] Even today, the meaning of logistics can be somewhat *fuzzy* in spite of its frequent usage in official publications and lengthy definition in service and joint regulations. Historian Stanley Falk describes logistics on two levels. First, at the intermediate level:

> Logistics is essentially moving, supplying, and maintaining military forces. It is basic to the ability of armies, fleets, and air forces to operate—indeed to exist. It involves men and materiel, transportation, quarters, depots, communications, evacuation and hospitalization, personnel replacement, service, and administration.

Second, at a higher level, logistics is:

> ...economics of warfare, including industrial mobilization; research and development; funding procurement; recruitment and training; testing; and in effect, practically everything related to military activities besides strategy and tactics.[2]

While there are certainly other definitions of logistics, Falk's encompassing definition and approach provides an ideal backdrop from which to examine and discuss logistics. Today, the term combat support is often used interchangeably with logistics.

The Themes of US Military Logistics

From a historical perspective, ten major themes stand out in modern US military logistics.[3]

- The tendency to neglect logistics in peacetime and expand hastily to respond to military situations or conflict.
- The increasing importance of logistics in terms of strategy and tactics. Since the turn of the century, logistical considerations increasingly have dominated both the formulation and execution of strategy and tactics.
- The growth in both complexity and scale of logistics in the 20th century. Rapid advances in technology and the speed and lethality associated with modern warfare have increased both the complexity and scale of logistics support.
- The need for cooperative logistics to support allied or coalition warfare. Virtually every war involving US forces since World War I has involved providing or, in some cases, receiving logistics support from allies or coalition partners. In peacetime, there has been an increasing reliance on host-nation support and burden sharing.
- Increasing specialization in logistics. The demands of modern warfare have increased the level of specialization among support forces.
- The growing tooth-to-tail ratio and logistics footprint issues associated with modern warfare. Modern, complex, mechanized, and technologically sophisticated military forces, capable of operating in every conceivable worldwide environment, require that a significant portion, if not the majority of it, be dedicated to providing logistics support to a relatively small operational component. At odds with this is the need to reduce the logistics footprint in order to achieve the rapid project of military power.
- The increasing number of civilians needed to provide adequate logistics support to military forces. Two subthemes dominate this area: first, unlike the first half of the 20th century, less reliance on the use of uniformed military logistics personnel and, second, the increasing importance of civilians in senior management positions.
- The centralization of logistics planning functions and a parallel effort to increase efficiency by organizing along functional rather than commodity lines.
- The application of civilian business processes and just-in-time delivery principles, coupled with the elimination of large stocks of spares.
- Competitive sourcing and privatization initiatives that replace traditional military logistics support with support from the private business sector.

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Mr Rainey is currently the Editor-in-Chief of the Air Force Journal of Logistics. He is a retired Air Force officer with more than 20 years of logistics experience. Ms Young is presently the editor of the Air Force Journal of Logistics. She has an extensive background in editing Air Force logistics manuals, particularly those used in the supply community. JL★

Financial managers can become *force multipliers* by providing accurate and reliable decision support and financial services for all wing organizations.

contemporary issues

Financial Managers: Becoming Strategic Force Multipliers

The importance of matching limited resources against the nation's highest defense priorities is more important than ever. Commanders will continue to face an environment of rapid change requiring capabilities that can adapt to a wide range of threats across the world. To maintain superiority of air and space capabilities, the United States must leverage every available dollar to meet the needs of the warfighter. The role of financial managers as force multipliers is critical in this process. A high-powered financial management team that provides world-class service to the warfighter and produces relevant, accurate, and timely information will maximize resource effectiveness by linking programming and budgeting to outputs and performance.

Matching limited resources to the right capability at the right time requires comptrollers to build high-performance teams that have a strong tactical foundation. Building an effective team requires strong leadership skills that build trust, develop the force, and inspire performance at the unit level. A strong tactical foundation rests with the strength of its people. Empowering them and providing them the right tools to be successful keeps the team proactive and looking for ways to improve services and support to the units they support. Their impact on the wing's capabilities and performance must never be underestimated. Comptrollers constantly must communicate their importance, link it to the wing's vision, and inspire their team to execute.

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Financial Managers

Becoming Strategic Force Multipliers

Lieutenant Colonel James F. Martin, USAF
Colonel Steven R. Jones, USAF, Retired

Introduction

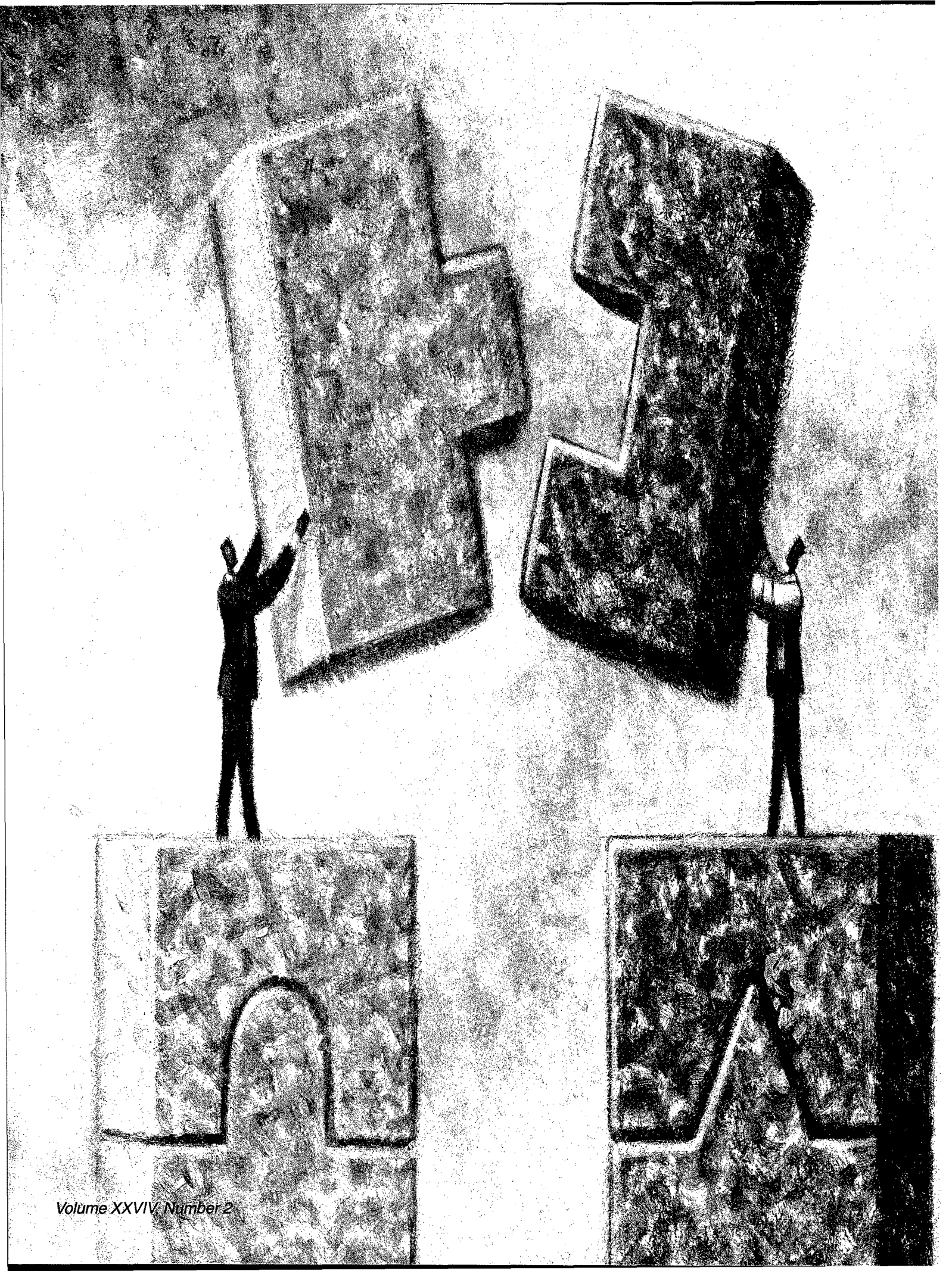
Financial Managers...strategic partners recognized as the ultimate source for financial and management information; a world-class team providing high-quality, customer-focused decision support and financial services.

—Michael Montelongo, Assistant Secretary of the Air Force (Financial Management and Comptroller)

The Secretary of the Air Force for Financial Management and Comptroller (SAF/FM) defines the role of financial managers and states sound financial management is at the core of Air Force transformation and needed for all successful organizations. Financial managers can become *force multipliers* by providing accurate and reliable decision support and financial services for all wing organizations. In today's environment where requirements exceed resources and funds decentralization has empowered wing commanders to make tough resource allocation decisions, comptrollers must develop the strategic leadership skills necessary to see through the eyes of the commander. With group and squadron commanders working in functional stovepipes, comptrollers must be able to see across the full spectrum of operations to balance resources against the wing's requirements. To meet the needs of the wing, comptrollers need to establish strategic partnerships with the wing commander and senior staff in a team effort to leverage available resources to maximize operations.

To establish a strategic partnership with the wing commander and senior staff, comptrollers must earn a seat at the strategic table by establishing credibility at the tactical and operational levels. Comptrollers can accomplish this by building high-powered teams focused on providing first-class customer service and support to the wing populace and commanders. To be successful, one must understand the objectives outlined in the SAF/FM vision and strategic plan, as well as the leadership skills needed to operate in a senior leadership position. Understanding the strategic vision and leadership skills necessary to succeed will help comptrollers focus on matching resources and services to the wing's highest capability requirements. While providing expert advice to the wing commander is critical to becoming a force multiplier to the commander, it will require the entire efforts of the comptroller squadron to ensure effective execution. Therefore, building a strong tactical foundation—based on people, performance, and results—is critical to meeting the operational requirements of the wing.

Comptrollers must be able to balance resources and requirements across all functional areas, ensuring each organization has enough resources to be successful. The partnerships established with other commanders and their organizations help determine funding priorities and services. Executing the strategic leadership skills to



operate in this environment will help wing comptrollers develop the eyes of the commander and transform financial managers into force multipliers for all wing operations.

Why is this important? Over the last decade, the US military has gone through many changes. The end of the Cold War brought about a peace dividend in the form of reduced budgets and manpower. Although the 1997 Quadrennial Defense Review (QDR) focused on winning two simultaneous regional conflicts such as Iraq and North Korea, a force that had drawn down 40 percent was asked to perform 45 contingency operations from 1990 to 1997 compared to 16 during the entire Cold War period.[1] The increased operations tempo placed great stress on the people, equipment, and infrastructure. Although the top-line Air Force budget has increased in recent years, the events of 11 September have increased demands to fight the War on Terrorism and meet a wide range of worldwide threats.[2] The competition for national resources will require strategic leaders to match limited defense funding against the right capabilities at the right time.

Because of the terrorist attacks of 11 September 2001, the US military faces an environment of rapid change requiring capabilities for a wide range of missions. It is important that the military transform to maintain its superiority of air and space capabilities. Air Force Transformation Flight Plan–Fiscal Year (FY) 2003-2007 seeks to determine future requirements for the Air Force while fighting the War on Terrorism and adapting to the numerous worldwide threats. To match resources to the real-world threat scenarios, transformation is mandatory, and efforts are underway to transform the planning, programming, budgeting, requirements, and acquisition processes.[3]

In the 2003 QDR Report, the Secretary of Defense stated we must transform our military from a threat-based strategy to one that focuses on capabilities.[4] We must leverage our limited resources and manpower to meet the demands of the increased operations tempo. Transformation Flight Plan-FY03-07 states, "America's airmen often are sent in harm's way to provide national security and international stability. We owe it to our airmen to provide them with the best resources and tools available to accomplish their vital mission—we want to win the next conflict with a score of 100-0."[5] According to the Secretary of the Air Force, "Superb financial management is the lifeblood of a dynamic world-class enterprise."[6] "Without resources, a vision is just an illusion," states former wing commander and current Deputy Assistant Secretary of the Air Force (Budget).[7] The message is simple—the importance of matching limited resources against our nation's highest defense priorities is now more important than ever, and financial managers will play a key role as force multipliers.

The Vision, Strategic Plan, and Force Development

If strategic planning is the brain of any successful organization, and a talented workforce the heart, then superb financial management is the lifeblood of a dynamic world-class enterprise.

—Dr James Roche,
Secretary of the Air Force[8]

The Vision

To become strategic partners and force multipliers, all financial managers and comptrollers should become familiar with the SAF/FM vision statement and strategic plan. It offers a challenge and focus for success—"comptrollers need to become strategists—business partners, top advisors—to commanders with the purpose of meeting wing and warfighter needs." In today's changing strategic environment, senior leadership across the Department of Defense (DoD) highlights the need to leverage limited resources and manpower to meet the demands of increased operations against a wide range of threats. The services provided by the comptroller and staff help leadership make the right strategic choices while making existing operations more effective and efficient. Therefore, it is critical that wing comptrollers move beyond transaction or process-based operations and focus on the financial services and analysis that match available resources against the right requirement at the right time.

According to the vision statement, success is measured by accuracy, timeliness of financial information, and quality of service. Armed with accurate and timely information and sound advice from a well-trained professional team of financial managers, comptrollers can focus on providing the commander and senior staff with advice on the most effective use of resources. The vision statement challenges comptrollers to revector their role toward decision support with greater involvement in developing strategy. It requires going beyond normal transaction-based accounting and standard budget execution data. Comptrollers should move from reaction-based leadership to a proactive solution-based mindset by anticipating requirements and developing winning financial strategies for the wing. As stated in the vision statement, "We must be bold. We must be the people who tell leadership 'how we can' not 'why we can't."[9]

The Strategic Plan

The SAF/FM strategic plan states financial management is a critical enabler for all Air Force operations. It outlines the Air Force financial management actions that will help shape the future of the world's best air force by leveraging the budget, cost estimating, and financial operations capabilities. Its goal is to provide "greater clarity about key priorities so that we are all on the same page."[10] The SAF/FM vision statement provides the focus for shifting the emphasis in the roles of comptrollers from transactions toward decision support:

> Strategic partners recognized as the ultimate source for financial and management information; a world-class team providing high-quality, customer-focused decision support and financial services.[11]

Five strategic goals help bring the SAF/FM vision into focus. They are:[12]

- Become a partner in strategic Air Force decisions.
- Recruit, prepare, and retain a well-trained and highly educated professional team for today and tomorrow.
- Make processes efficient and effective to produce accurate and relevant financial information, complemented by sophisticated decision support.
- Reduce our cost structure by employing leading-edge technologies that continuously streamline financial management processes and increase capabilities.
- Provide our customers with world-class service.

The three strategic themes below, merged with the five strategic goals above, provide the framework and mindset to

develop the culture of a successful comptroller organization. It will require strong leadership to make the vision a reality, but the payoff is significant and required to help maximize wing mission capabilities (Table 1).[13]

- **Warfighter Support.** Financial management will be an expeditionary-focused workforce, ready to deploy, support those deployed, and maintain effective home-station operations. This means providing the most cost-effective financial services to airmen around the world. The FM community, as a strategic partner to the warfighter, will provide timely and accurate services to support commanders and other senior leaders.
- **Strategic Resourcing and Cost Management.** Financial management will maximize resource effectiveness and cost efficiencies by linking systems, activities, and resourcing strategies to outputs and performance. The work under this theme includes linking the programming and budgeting process to performance and capabilities (to create a performance management structure) and identifying and pursuing innovative resourcing strategies. These efforts benefit the warfighter by providing the optimal mix of resources for Air Force operations, financial management operations, service delivery, and cost management.
- **Information Reliability and Integration.** Work undertaken here will produce relevant, accurate, and timely financial information that is integrated seamlessly into the financial environment so that all the information needed to perform business analysis is readily available. This theme addresses the information needs of our commanders and senior leadership and satisfies the regulatory requirements of sound financial management at all levels within the Air Force.

As strategic leaders, comptrollers must be able to lead and motivate their team to achieve these objectives. It is the strength and execution of the team that ultimately will determine the success of the strategic plan. Therefore, the strategic themes are built on the foundation of people who are charged with the successful execution of the plan at all levels of wing operations (Figure 1). To effectively lead the squadron to success, comptrollers must develop the strategic eyes of the commander to understand needs, develop financial strategies, and execute a game plan to maximize capabilities. Executing a successful game plan at the tactical, operational, and strategic levels will enable financial managers to become strategic force multipliers for the wing commander.

Force Development

The SAF/FM strategic plan challenges comptrollers to become strategic partners with the commander. To become strategic partners with the wing commander, comptrollers must understand the enduring competencies required of senior leaders who are charged with leading at the strategic level. The Air Force's new Force Development concept places an emphasis on the development of senior leaders through the tactical, operational, and strategic levels. The goal of Force Development is to create strategic leaders who have a wider perspective of the issues. By developing officers through a method that takes them out of their career stovepipes, senior officers will have the necessary skills and enduring competencies to meet a wide array of real-world challenges needed to lead our institutions.[16] The Force Development model lists three enduring competencies and the characteristics that officers should develop as they increase in rank (Figure 2).

To become a strategic partner and see through the eyes of the commander, the competencies for leading the institution must be understood and developed early. Why? Unlike other squadron commanders, who work directly for a group commander, the comptroller is the only squadron commander who works directly for the wing commander. Other squadrons operate in functional stovepipe environments focused mainly on the operational

	Strategic Themes		
Strategic Goals	**Warfighter Support**	**Strategic Resourcing and Cost Management**	**Information Reliability and Integration**
1. Strategic partner		X	X
2. Well-trained, highly educated professional team	X	X	X
3. Efficient processes, accurate financial information, sophisticated decision support	X	X	X
4. Reduce costs			
5. World-class service	X		X

Table 1. Relationship Between Strategic Goals and Strategic Themes[14]

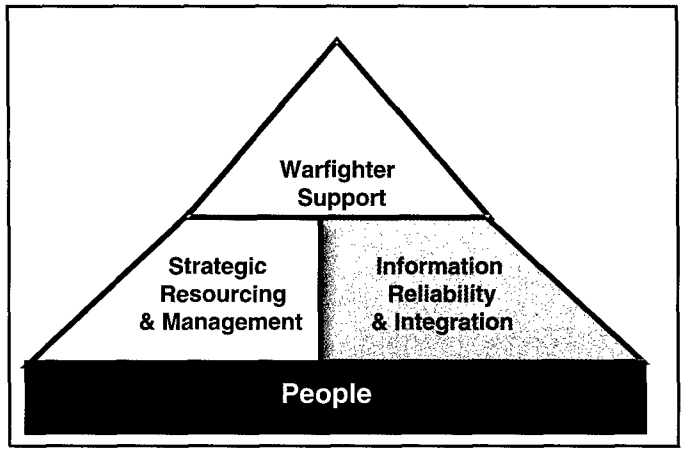


Figure 1. Force Development[17]

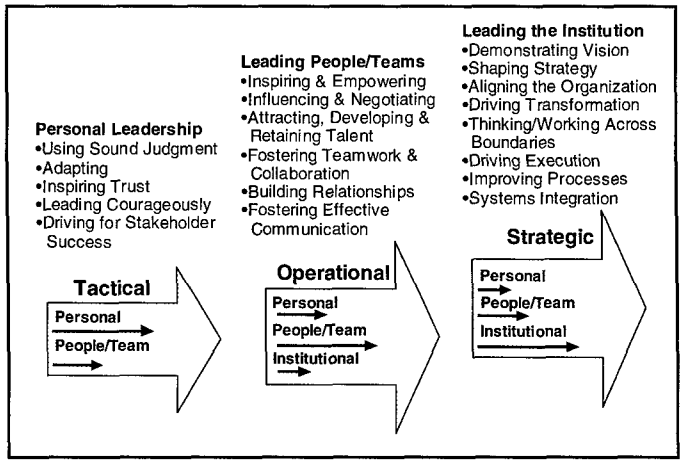


Figure 2. Air Force Force-Development Leadership Model

requirements of their unit and group. Their group commanders provide the wing commander the strategic link between the group and operational squadron. To balance requirements against limited resources effectively, comptrollers cannot operate in a stovepipe environment; they must understand the full spectrum of requirements in all functional areas. Developing strategic leadership skills early allows comptrollers to acquire the strategic lens of the commander and facilitates better advice and decisionmaking across all functional areas.

It is also the responsibility of the comptroller squadron commanders to develop their organization into the *supporting lens* needed to provide the right service at the right time. A high-performance team with an understanding of the wing's operational requirements allows comptrollers to get a clear view of the strategic environment. Blending strategic leadership skills into the operational and tactical aspects of the squadron allows all financial managers an opportunity to share in the development of the strategic plan. This provides vision, a sense of direction, and purpose for the organization. Involving and empowering the comptroller team helps grow future comptrollers and financial managers at all levels. Developing the skills of the comptroller team helps build a solid foundation at the tactical level. As a result, all stakeholders in the process are involved and motivated to achieve the high results. With a strong team and the right strategic leadership skills, comptrollers can develop a culture that is willing to move from a transaction-based, process-oriented unit to a proactive high-performance team motivated to provide world-class financial service and support to the wing.

Comptrollership and Command—Building the Foundation for Success

As the SAF/FM Strategic Plan states, "Great organizations align their values and visions with their actions and results."[18] A key aspect of comptroller leadership is being able to link the strategic vision of the wing back to their unit and then inspire the team to execute a successful game plan. For any high-performance team to be successful, they must be able to master the fundamentals before embarking on initiatives for positive change. If the squadron is unable to master the fundamentals, comptrollers will find themselves bogged down in day-to-day operations answering complaints or chasing budget data. To become an effective strategic partner to the wing commander, effective command leadership is necessary to build a strong foundation at the tactical or squadron level.

Command—Are You Ready?

The opportunity to become a wing comptroller also brings the greatest honor and privilege given to any Air Force officer—the opportunity to command. While the duties of a wing comptroller play a significant role in the tactical, operational, and strategic success of the wing, command leadership sets the tone for developing a high-powered organization, establishing credibility with your peers, and earning the empowerment from senior leadership. This credibility helps earn comptrollers a *seat at the table* on the wing's strategic leadership team, allowing the comptroller squadron an opportunity to influence the wing's performance through dynamic financial management.

Command is the ultimate test of leadership. From the time commanders take the flag from the wing commander, their actions are visible and judged by their people, fellow squadron commanders, group commanders, and the wing commander—the comptroller's boss. To prepare for the ultimate responsibility, one should reflect by asking, "Am I ready?" In *Sharing Success, Owning Failure,* Colonel Dave Goldfein highlights questions from Major General Richard B. Meyer's book *Company Command: The Bottom Line.* These questions can help prepare anyone for command.[19]

- Are you willing to dedicate yourself 24 hours a day, 7 days a week, if necessary, for your unit and your troops?
- Is your family willing to bear the sacrifices?
- Are you willing to lead by example in everything you do—to live in a fishbowl with your personal and professional life open to view?
- Do you understand that loyalty is a two-way street?
- Can you challenge your troops to go the extra mile, knowing the challenges may increase while the rewards remain the same?
- Are you willing to put your neck on the line and take risks when necessary?
- Are you willing to make the tough decisions, regardless of the consequences?
- Are you willing to take responsibility for everything that happens or does not happen in your unit?
- Are you willing to support your boss completely and wholeheartedly, even if the person is someone you do not like?
- Are you willing to sacrifice your career to protect and preserve the dignity of your troops?

Command is a difficult and rewarding challenge. It is not about filling squares in one's career. It is about serving the people in the squadron command and wing. It is a total commitment; preparing yourself to answer yes to these questions before assuming command will help establish that commitment from day one.

As the Chairmen of the Joint Chief of Staff recently stated, there are many books that focus on actions leaders need to take, but it is the functional qualities of good leadership that distinguish an "effective unit from a poor one."[20] Listing five qualities of leadership, "selflessness, loyalty, moral courage, delegation, and character," Meyers states the most basic quality of good leadership is character. He further states that character of leaders fosters trust and allows strategic relationships to develop between peers and superiors. It fosters a bond between leaders and subordinates. His message is clear, "When you find leaders with character, there is inevitably a long line waiting to follow them."[21]

Character does matter. In *Sharing Success and Owning Failure,* senior noncommissioned officers (NCO) were asked their expectations of a good commander. In summary, they wanted a commander who possessed good character and lived by core values. The SAF/FM vision statement remains grounded in the core values—integrity, service before self, and excellence—but it is the strength of the comptroller's character and leadership that will make core values a part of the organization's culture. In an article entitled "Reflections on Core Values," former Air Force Chief of Staff General Michael Ryan stated:

> Our challenge is not just to understand the core values, we must live them. Not in some phony "holier than thou" way—people see through that—but in a conscious choice to do our best each day. Moreover, as we do, we will build on the trust that makes us a great team, a great family—a great Air Force.[22]

Core values are more than lipservice; they should be ingrained in the organization and form the cement for a strong foundation. Being firmly planted in the organization's culture will help establish credibility and trust from other squadrons and the senior staff. Knowing the comptroller squadron is dedicated to doing the right thing for the right reasons, the wing's senior leadership will empower the organization to make tough strategic resource allocation recommendations and decisions. Changing the organization's culture is a difficult task and cannot be done by the commander alone.

Team Building

Bo Schembechler, former head football coach at the University of Michigan, said, "You will never get the same effort from one man's seeking glory as from a group of men pulling for a shared goal."[23] The role as a comptroller squadron commander is very similar to that of a head football coach. The commander's job is to build a high-performance winning organization. The commander must be able to assess the talent, put leadership in the right places, and give the team a game plan that keeps them on the offensive side of the ball. Staying on the offensive means giving employees "the information, skills, incentives, and responsibility to be innovative and make decisions to improve their work processes."[24] The most adverse factor to high performance and positive change is the leader who moves from the tactical to the operational level and continues to micromanage. Building a proactive, high-powered team is critical because, as a strategic leader, comptrollers are not on the field executing. Comptrollers do not compute travel vouchers, pay bills, verify accounting data, or input budget information into the financial plan. The comptroller sets the direction and standards, works with the staff to develop a winning, executable game plan, and rewards the team for their efforts. That's coaching—the most important aspect of a good leader in a fast-paced environment.

In *Leading Change,* John Kotter gives four characteristics for building an effective team capable of operating in a fast-paced environment.[25] His four characteristics, as applied to comptrollership, which help to maximize performance and team development, are:

- **Position power.** Do you have experienced middle-level NCOs who are capable of teaching airmen the fundamentals of their jobs? Are they in the right places to effect positive change?
- **Expertise.** Do your airmen have the expertise necessary to execute the gameplan? Is their knowledge sufficient to promote intelligent innovation?
- **Credibility.** Do you have enough people in the right places to ensure services are provided accurately and on time? Nothing establishes credibility faster than delivering the service on time or ahead of schedule.
- **Leadership.** Do your senior NCOs, senior civilians, and officers possess the leadership skills that can motivate mid-level NCOs and airmen in their areas? In most cases, they do, and they will feed off your energy—do not disappoint them.

Urgency

Building an effective team focused on producing results is critical in today's changing environment. Once leadership is put in the right place, it is time to get started. A 2-year assignment as a comptroller squadron commander does not lend itself to months of evaluation before moving forward. In *Leading Change,* Kotter states the "biggest mistake people make when trying to change organizations is to plunge ahead without establishing a high sense of urgency in fellow managers and employees."[26] Based on feedback from the predecessor, the major command staff, and your boss, comptrollers should have a reasonable understanding of the health of the organization. Performance metrics, unit compliance, operational readiness, and squadron self-inspections should offer insight into fundamental operations. In addition, each comptroller squadron is required to have a quality assurance (QA) program. An effective QA program should be the centerpiece for continuous improvement, providing a list of open items and status of corrective actions from the assessments above. If this information is not available through your QA program, it should provide red flags that immediate action may be required. Waiting too long to determine the strengths and weaknesses of the squadron could cause the organization to become complacent, which is one of the "greatest barriers for effectively implementing positive change."[27] An effective team focused on continuous improvement will solidify the tactical foundation for the squadron, which will allow the comptroller to focus on the operational and strategic needs of the wing.

The Five Ps: People, Purpose, Pride, Professionalism, Product

Continuous improvement at the organizational level requires leaders and commanders to balance the needs of the wing, squadron, and individuals of the unit. General William L. Creech, former commander of Tactical Air Command, authored *The Five Pillars of Total Quality Management.* In a speech detailing his concepts, Creech preached, "A successful organization must be based on core values and principles that are in harmony with the essential nature of human beings." Operating in an environment of constant change, his model provides practical advice on how to succeed in any real-world organization. The model focuses on five spheres—people, purpose, pride, professionalism, and the product (Figure 3).[28] All five are important and must work in harmony to maintain the balance of the organization. Leaders keep the harmony in check by understanding the needs and requirements within each sphere.

People. People are the building blocks for a successful organization. As outlined in the SAF/FM strategic plan, the strength of your foundation rests on the strength of our people. As Creech states, "One should always consider the people first, treat them well, and place paramount importance on their welfare, morale, and the opportunity to grow and excel."[29] Leaders must

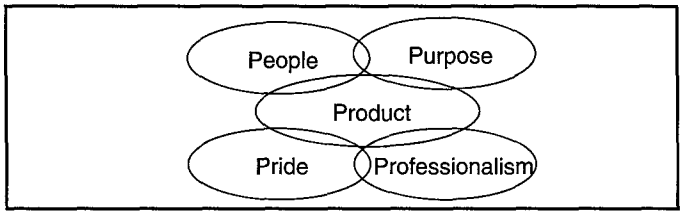


Figure 3. Five Ps Model[38]

understand the personal and professional needs of their people. Comptrollers must be able to maximize team performance while providing people new opportunities to broaden their skills. The decision to move an experienced pay and travel NCO into budget is an example. Determining the right time to meet the professional needs of the individual while maintaining support to the warfighter will always be a leadership challenge. Involving the players and supervisors in those decisions helps maintain balance and keeps the team motivated.

Purpose. Leaders must be able to instill a strong sense of purpose. This unity of effort instills a strong sense of commitment and direction.[30] As a strategic leader and commander, it is your responsibility to help your organization see the big picture. Strategic leaders, along with their leadership team, learn how to simplify mission objectives in terms the youngest airmen in the organization can understand. Helping the organization understand its impact on warfighter support or the wing's resource decision process establishes a strategic purpose for the organization. Establishing a clear vision and communicating it creates a unifying effort. In *Lincoln on Leadership,* the author states President Lincoln consistently and effectively reaffirmed his vision for the United States by providing grassroots leadership securing a connection between leadership and the people. The author contends organizations prosper or die based on the leader's ability to embody and communicate the organization's vision and purpose.[31]

Pride. The goal of strategic leaders is to create high-powered organizations where people are empowered and understand the role and responsibilities and how their efforts contribute to the mission. Ninety-five percent of the people come to work wanting to succeed and be winners.[32] Great leaders capture that feeling, provide focus, and develop a climate that produces pride. Personal pride is the fuel that drives people to accomplish great things.[33] Developing squadron pride around focused objectives ensures high-performance execution.

As mentioned, in today's environment of change, successful teams maintain an offensive mindset. In preparing for inspections, I have found organizations that take a proactive approach are often the most successful. Early in my career, an inspector provided six questions that could turn a reactive organization into a proactive unit at all levels. The author (Martin) quickly integrated them into the QA program and used the questions to establish pride of ownership and continuous improvement throughout the squadron. It proved effective because individuals understand their role and can measure their success. Individuals and supervisors get feedback for continuous improvement and focus training efforts. The information also allows leadership to reward the hard work and efforts of the team. The six questions developed over the years are:

- What am I responsible for?
- What is the process to complete the task accurately and on time?
- How do I measure the results?
- Are my customers satisfied?
- Do I identify improvement areas and get focused training to improve?
- What are the results of my efforts?

With effective leadership, these questions move an organization from a reactive environment to a proactive one. Imagine the inspector who sits down with your youngest airmen who initiates the following scenario.

> I am Airmen Smith, and I am responsible for these areas. Here is the process I follow to complete the task right and on time. I measure the results by tracking my efforts with this metric. Based on surveys, my customers are satisfied with the service I provide. Although I try to do my best, the data reveal I could improve in this area. My supervisors and I identified the root cause, and I received focused training to improve the results. As a result, my areas are exceeding standards, and my efforts are helping the wing accomplish its mission—that's pride of ownership.

Professionalism. Pride breeds professionalism. According to Creech, "Excellent leaders facilitate professionalism. More than that, they insist on it."[34] The six questions not only promote pride but also establish a standard of professionalism. They provide a measure of success. Great leaders combine personal needs, provide a purpose and vision, and establish pride of ownership. This creates a winning environment and promotes professionalism. Insist on high standards, draw the line, and then create a winning environment where professionalism is a part of the organization's culture and a standard everyone is willing to maintain and enforce. The results will be impressive.

Product. The SAF/FM vision states success as the wing's strategic partner will be measured by the accuracy and timeliness of financial information, success in the second part by quality of service, timeliness, and cost.[35] To meet the operational and strategic requirements of the wing, performance metrics should provide an assessment of services provided to customers. If the metric does not meet standards, it might indicate a problem with training, or it might signal a significant problem that will affect the wing's performance. Metrics should measure timeliness and accuracy of services and how the wing's resources are helping to maximize wing capabilities. Comptrollers should leverage new automation tools that provide accurate, real-time information, allowing more time to conduct decision support analysis. New automated tools are available at the major commands and provide valuable information tools needed for critical resource allocation decisions at the wing. According to Creech, "When performance is measured, it improves. When performance is measured and compared with other units, performance improves more. And when performance is measured and compared and significant improvement is recognized and rewarded, then productivity really takes off."[36]

The Five Ps Model illustrated in Figure 3 is just that, a model. It is a tool to help develop a performance mindset. As Creech states, the leader's role is to make the organization better.[37] Determine what works best for the squadron and develop a culture focused on people, performance, and results. Developing a winning culture will focus the comptroller team on supporting warfighter needs in the tactical environment and allow the comptroller to focus on the operational and strategic needs of the wing, which will ensure you a seat at the strategic table.

Leading in an Operational Environment—Providing the Balance Between Resources and Requirements

We have to admit that we are in ruts. We are in stovepipes. We have been taught to think one way. We have been taught

to defend our prerogatives.... We've got to break out of that....

—General John Jumper[39]

In the early 1990s, the Air Force Chief of Staff, General Merrill A. McPeak, reorganized the wing under the wing composite structure.[40] Before that time, wing comptroller squadrons were aligned under the resource management group. The new structure placed comptroller organizations reporting directly to the wing commander. This was supposed to remove bias from any one group and allow comptrollers to work across all functional areas to solve financial issues without bias from any one group. This also thrust the comptroller as a key member of the staff, acting as the wing's senior financial advisor. This change was significant and important in a decade that saw budgets and manpower decreased by one-third while the operations tempo increased fourfold.[41] Now our military must be able to respond with multiple capabilities to a variety of worldwide threats. The importance of applying limited resources to the right capability at the right time is essential for meeting warfighter requirements. Comptrollers must possess the skills to view the entire spectrum of operations through the commander's strategic lens and then pursue innovative resourcing strategies that link funding to outputs and performance.[42]

Be Everywhere, Know Everything

Shortly after the comptroller's transition to the wing commander's staff, I received my first assignment as a wing comptroller. During an initial feedback session with my wing commander, he told me he expected only two things from me—"be everywhere and know everything." In other words, my job was to know as much as possible about every wing organization, to balance requirements effectively against available resources. As the wing's senior financial advisor, I realized those two things are the essence of comptroller responsibilities at the wing level. In the wing, the comptroller is a member of the wing commander's staff for a reason. The comptroller squadron must work across all functional areas to solve issues and ensure funds maximize wing capabilities. To become an effective strategic partner, comptrollers must be proactive in developing financial strategies with group and squadron commanders. While the wing commander may write the performance report of the comptroller, feedback on how well the comptroller organization supports warfighter needs determines the final grade.

Wing comptrollers must realize their analysis and advice impacts the full spectrum of operations. Expert financial analysis is required to determine the impact of all decisions not only to the immediate squadron or group but also to the second and third order. For example, applying funding to an old F-16 hardened aircraft shelter may not compete well against other clear-cut readiness shortfalls; however, consider the impacts. The doors on the shelter will not close. This allows snow in during the winter and extreme heat and rain in during the summer. Combined with poor lighting, it is no surprise airmen are slow turning jets for sortie generation. By providing doors that open and close, climate controls, and proper lighting, airmen are able to increase productivity and quickly turn jets. It also had a tremendous impact on morale and retention rates. The decision to fund was not based on the facility requirement alone. It was based on a comptroller's assessment of multiple functional areas and the impact on operational capabilities. This is a good example of how the comptroller team can leverage performance information to "seamlessly integrate resourcing strategies to maximize outputs and performance."[43] Inspiring the team to achieve these types of results requires thinking across boundaries, integrating information, demonstrating vision, and driving effective execution—all characteristics of strategic leadership skills needed to lead the institution.[44] This helps transform comptroller organizations into force multipliers and establishes the comptroller as an effective strategic partner to the wing commander and senior staff.

According to John Kotter, in *What Leaders Really Do,* leadership sets the direction of the organization. Effective leaders create strategies for what the organization should look like over the long term.[45] While wing commanders provide the strategic vision for the wing, they rely on the senior staff to implement the requirements to achieve the vision. But remember, without resources, visions will never become realities. By establishing a level of credibility through the example described above, commanders will turn to the comptroller for innovative resourcing strategies to ensure resources are maximized to achieve the vision.[46] As commanders realize the importance of information integration and strategic resourcing, few strategic decisions will be made without the comptroller at the table. Therefore, comptrollers must be everywhere and know everything to provide expert advice on applying limited resources across the full spectrum of operations.

Build Command Relationships

To add value to the strategic partnership, comptrollers must be engaged actively in all activities across the wing. It is not an option; in fact, it is a graded item. This was one of the comptroller expectations that Martin's second wing commander communicated during the initial feedback session. The relationships comptrollers develop with other commanders and wing staff agencies allow them to be everywhere and know everything. To effectively develop a financial strategy to maximize wing capabilities, comptrollers must understand the requirements and capabilities of each group and squadron. As the wing commander's primary advisor, comptrollers must be able to link group and squadron requirements to the wing commander's vision, while maintaining a balanced resource allocation plan.

In *Execution, The Discipline of Getting Things Done*, the authors state an effective strategy lays out, in specific terms, the direction of the unit and how it will get there. To be effective, a strategy has to be constructed and owned by those who will execute it, and leaders must be in charge of developing the substance of the strategic plan.[47] Developing an effective resource allocation plan requires buy-in from other squadron and group commanders. It also requires the ability to listen and understand their needs. As mentioned earlier, character matters. Comptrollers who establish credibility and trust with their people and wing organizations can be proactive in developing successful financial strategies. Although the comptroller and staff are the architects of the wing's financial game plan, without consensus of the wing's senior leadership, unity of effort is rarely established. Meeting the operational requirements of your fellow squadron commanders, while maintaining a balance between

resources and requirements, builds the strategic partnership with the wing commander and senior staff.

Your Team's Role

According to Noel Tichy, author of *The Leadership Engine,* "Winning companies know that games are won and lost on the playing field." He contends winning is about leadership—at all levels in the organization.[48] As previously mentioned, comptrollers cannot do it alone. It is a team effort. While the comptroller may have the perfect game plan for executing resources, it is the comptroller team that executes on the field and is ultimately responsible for the victory. They are the comptroller's eyes. It is the comptroller's responsibility, along with the staff, to teach them to see through *strategic lens* so they know what to look for. Tichy suggests, "Great leaders teach others to be leaders, not followers. They accomplish their goals through the people they teach. They have clear ideas and values, based on knowledge and experience, and they articulate those lessons to others."[49] Keeping the seat at the strategic table will depend on how well the comptroller team supports and executes the required actions needed to maximize the wing's capabilities. With the right focus and energy, mission requirements blend with the five Ps, resulting in high performance, financial services, and support to the wing. Remember, it begins and ends with people, with the product anchoring the center—never underestimate the team's impact on wing operations. Provide them the leadership and empower them to become wing force multipliers.

The comptroller's financial analysis flight is the architect of the wing's financial game plan for identifying requirements and executing resources to achieve the wing's objectives. They are the comptroller's expert advisors. While the comptroller strives to become a strategic partner with the wing commander and senior staff, the financial analysts should become strategic partners with group and squadron resource advisors. By establishing strategic partnerships with the groups, the analysts become experts of the group capabilities and requirements. The analysts work with the resource advisors to determine funding priorities, identify shortfalls, and develop financial plans. This requires analysts to venture out into the units. Face-to-face interaction allows analysts to learn the unique requirements and perspectives of the group and squadron commanders. One way to achieve this is to revitalize resource management teams. Resource management teams are made up of representatives from various support activities. Led by comptroller personnel, resource management teams visit units to work with commanders on how to improve operations and services. This helps integrate all functional areas and builds unity of effort for wing operations. Armed with this information, the financial analysis experts can help the comptroller understand the unique financial requirements of each wing organization. The comptroller and staff then can shape strategy and lean forward to meet the capability needs of the wing.

Timely and accurate support to the warfighter makes the financial services flight a force multiplier for the wing. A financial service is an effects-based operation. In fact, the effect on morale and productivity is measured at least twice a month when people open their leave and earnings statements. Rarely do people notice when pay and travel services are done correctly. However, when a pay or travel issue exists, it has a negative impact on wing operations. Imagine the maintenance troop with a pay problem, working under extreme time constraints, trying to find time to go to finance to fix a problem. The lost duty time and frustration have a negative impact on flight-line productivity and safety. Maintenance troops who know their pay is correct spend more time on the flight line focused on proper procedures for maintaining sortie production. Financial services personnel should never underestimate the impact they have on operational performance. Understanding the financial services required by the different units and tailoring a service plan to meet the specific needs will result in measurable increases to wing capabilities.

For the comptroller organization to be a force multiplier for wing operations, comptrollers must be focused, inspire and empower their people, be able to influence and build consensus with group and squadron commanders, and shape strategy for the wing commander. The comptroller is provided many opportunities to marry up the comptroller organization with the operational requirements of the wing. The comptroller already has a *seat at the table* for many advisory boards on the wing commander's staff. Whether it is at a nonappropriated funds oversight committee meeting, a civilian employment management board, a facilities utilization board, the cost-per-flying-hour working group, or the comptroller's own financial management board, comptrollers are given a voice to shape strategy and align resources with requirements. With commanders in those meetings fighting for resources in their individual stovepipes, the wing commander will turn to the comptroller to maintain the strategic balance. To establish oneself as an effective strategic partner with the wing commanders, comptrollers must *get smart* on all operational agendas to balance limited funding across all functional areas. As Creech states, in an article entitled "Organizational and Leadership Principles for Senior Leaders," "the leader must be proactive, dynamic, informed, and involved."[50]

Becoming the Strategic Force Multiplier

A budget is much more than a collection of numbers. A budget is a reflection of a nation's priorities, its needs, and its promise.

—President George W. Bush[51]

The Need for Strategic Change

From a section of the QDR Report entitled "Managing Risks," Secretary of Defense Donald Rumsfeld discusses "balancing the demands of the present against preparation for the future, consistent with the strategy's priorities." He outlines the challenges of operating in an era with reduced budgets and limited manpower. Since the end of the Cold War, our budgets and forces have been downsized, putting great strain on infrastructure, equipment, and people.[52] One dimension of managing this risk laid out in the article is the "ability to develop management practices and controls that use resources effectively." He furthers states, "DoD will work to achieve a transformation in business practices, with a particular emphasis on financial management."

The Transformation Flight Plan also provides the perspective and need for strategic leadership. The Chief of Staff and the Secretary of the Air Force discuss the need for transformation as the military adapts to "profound changes in the nature of conflict and the conduct of war brought about by dramatic advances in technology, as well as the new international security environment of the post-Cold War. More than ever, the US military must transform to preserve its current advantages. It also must shift

from a "threat-based to a capabilities-based approach to ensure national security."[53] Understanding the needs and requirements of each unit on base, comptrollers can maximize resources and leverage the strategic capabilities of the wing across the spectrum of operations.

Strategic Vision

The new Force Development concept attempts to give future senior leaders opportunities to develop a broader view of operations. This will allow them to reduce some of the functional bias of their primary specialty, developing additional skills and widening their strategic lens.[54] As the commander's chief financial advisor, comptrollers must also widen their lens and view the wing through the eyes of the wing commander. Since the end of the Cold War, forces have been downsized by one-third, but operations have increased fourfold.[55] The War on Terrorism will require our forces to meet demands across the globe, using the new expeditionary mindset. This will require commanders to maximize flexibility and strategically reallocate resources when priorities change.

Today, the Air Staff and major commands are reducing the amount of centrally funded accounts and pushing the funds down to the bases, giving them resource allocation flexibility for the tough tradeoff decisions. On a moment's notice, the comptroller should have a good understanding of all operations knowing what requirements need immediate funding, where that funding will come from, and what requirements can be deferred. As mentioned, by working effectively with group and squadron commanders at the operational level, the wing commander will turn to the comptroller for tough financial decisions and the strategic game plan. Major General Stephen Lorenz, Air Force Director of Budget, states in his *Twelve Points of Leadership,* "taking a strategic look at the organization and the second and third order of effects will allow you to see the boss' concerns."[56] This is an important strategic leadership characteristic in today's operating environment.

The Comptroller and the Commander

Leadership is paramount in the strategic environment. Effective leadership at the tactical and operational levels will earn you a seat at the wing commander's table as one of the strategic advisors. Wing commanders are the final approval authority for all resource decisions. In an environment where funding and shortfalls are being pushed to the commander, it is important for commanders to understand what their responsibilities are and what the comptroller offers in the strategic partnership. In an article published by Colonel Paul Hough, entitled "Resource Management for Commanders: An Evolving Strategy," he provides financial tips for wing commanders. Using his words and a few of the author's (Martin) own, the following provides a good summary of how comptrollers can maximize the strategic partnership with the wing commander.[57]

- Comptrollers must understand their role. They are the wing's chief financial officers. They are the key advisors for reviewing budget requests, validating the wing's requirements, and providing recommendations for the best use of resources to achieve the unit's mission.
- Assess the financial health of the wing as soon as possible after taking command. Get to know the commanders at all levels and ensure their priorities are included in budgets and implemented during execution.
- Get the most out of the budget. Stay focused on vision and mission requirements. Look for ways to find money to be force multipliers.
- Be the honest broker. Ensure that the real needs of the mission are funded first and a game plan exists to match the right resources to the required capability.
- Balance the needs of the mission with infrastructure and quality-of -life concerns. Constantly financing mission concerns at the expense of long-term infrastructure and quality of life eventually will have a negative impact on the wing's production and its people in the long run. Have a plan and market your needs to the major command for help.
- Remember, the mission is second only to the law. Appropriated dollars must be used for their general purpose according to the funding guidance from command and according to the law. Establish a good relationship with your staff judge advocate. If the answer is no to a funding question, look for alternate solutions that meet the objectives of the wing commander but have the moral courage to say no if necessary.

Understanding your role in the strategic process makes you a strategic partner to the wing commander and staff. Strategic thinking requires one to explore what may be worth doing and why. Its application is about choosing the "ways, places, and times to get at the heart of the matter."[58] Understanding how the wing operates and the organization's role in execution allows comptrollers not only to see through the eyes of the commander but also to implement positive change.

As the senior financial advisor to the wing commander, comptrollers must be able to paint a strategic picture of the Air Force and major command's financial game plan. As the SAF/FM strategic plan states, "Effective strategic resourcing will be maximized by linking the programming and budgeting process to performance and capabilities."[59] Close interaction with the major command comptroller staff will establish a link between the wing and major command's financial strategy. This will help the wing get out in front of the existing processes. One of Lorenz's "Twelve Points of Leadership" is, "Life is about balancing shortfalls."[60] Knowing where the capability shortfalls exist and how they can be resolved helps shape strategy and drives focused execution.

Comptrollers should leverage information and cost-management efforts to maximize wing capabilities. Several of the major commands now require financial plans to address how projected funding supports the required capabilities of the wing. Rather than comparing next year's projected funding to current and prior year execution to determine shortfalls, numbers are used to assess the capabilities of each group at the wing. For example, based on a funding bogey, an operational group could assess how it can execute the assigned flying hours, equip pilots, maintain the aircraft, send personnel to critical training, meet deployment requirements, and support the squadron with base operating support. A capability rate is then assigned, and shortfalls are narrated in terms of increasing capabilities based on the current threat environment rather than narrating historical budget data. This change involves the stakeholders and paints a strategic picture for the wing that everyone involved can understand. It transforms a budget document into an assessment of a wing's capabilities, provides strategic direction, applies limited

resources for the right capability, and better competes for additional funding at the command. As stated in the SAF/FM strategic plan, it shifts the roles of comptrollers from transactions to decision support and validates the value of the comptroller as a strategic partner to the wing command.

Execution

The SAF/FM vision challenges comptrollers to become strategic partners with commanders and to imagine a wing that operates at peak efficiency. However, the ingredient that turns any vision statement into reality is focused execution. This is the first point in Lorenz's "Twelve Points of Leadership." It states, "Keep your eye on the target—focus, focus, focus. Stay focused on every objective in every situation. Being focused allows you to screen out unrelated and distracting issues that try to creep in."[61] In *Execution, the Discipline of Getting Things Done,* the authors define execution as:

> ...the missing link, the main reason companies fall short of their promises, the gap between what a company wants to achieve and the ability of their organizations to deliver it, a discipline requiring a comprehensive understanding of a business, its people, and its environment, and the way to link the three core processes of any business—the people process, the strategy, and the operating plan—together to get things done on time.[62]

Why is this definition important? Many organizations have good intentions and high expectations. What makes an organization truly successful is focusing on the operational and strategic requirements of the wing. While your organization may seem to be executing at the unit level, is it contributing to the strategic requirements of the wing? Is your execution providing the wing accurate and timely advice to make critical operational decisions? Is customer service ensuring people are paid on time and helping to maintain morale and productivity in the wing? Do your financial products delivered to higher headquarters represent the funding required to meet current and future capability requirements of the wing?

Successful leaders know how to link good strategy and tactics during execution. In *Sun Tzu for Success,* the author provides a useful definition:[63]

- Strategy determines the allocation of resources. It is the plan.
- Tactics deal with the use of resources. It is the implementation of the plan.

Effective execution will require your staff to have a comprehensive understanding of the wing, the units, and its people. Interaction with group and squadron commanders will allow you to see the strategic needs of the wing and allow you to develop a game plan with your team to provide warfighter support, maximize strategic resourcing and cost management, and deliver reliable information for decisionmaking. That is the challenge of the Air Force Financial Management Strategic Plan and Vision—the Air Force is counting on comptrollers to transform financial managers into strategic force multipliers for the wing commander and senior staff.

Conclusion

The importance of matching limited resources against the nation's highest defense priorities is more important than ever. Commanders will continue to face an environment of rapid change requiring capabilities that can adapt to a wide range of threats across the world. To maintain superiority of air and space capabilities, the United States must leverage every available dollar to meet the needs of the warfighter. The role of financial managers as force multipliers is critical in this process. A high-powered financial management team that provides world-class service to the warfighter and "produces relevant, accurate, and timely information" will "maximize resource effectiveness by linking programming and budgeting to outputs and performance."[64]

This builds trust and credibility with fellow commanders and leads to a strategic partnership with the wing commander.

The SAF/FM vision and strategic plan provide the roadmap for comptrollers to be successful in reaching this goal. The strategic plan provides the framework and expectations for maximizing service and support to the warfighter and commander. It requires comptrollers to move from a transaction-based approach to one that focuses on leveraging information and strategic resourcing to maximize the capabilities of the warfighters. However, it is leadership that will make the vision and strategic plan a reality (Figure 4). The Air Force development model provides core competencies required of senior leaders. While most squadron commanders operate in stovepipes, comptrollers must recognize the leadership skills required of strategic leaders and develop the ability to see through their eyes. This perspective of wing operations is required and necessary to match limited resources against capability requirements.

Matching limited resources to the right capability at the right time requires comptrollers to build high-performance teams that have a strong tactical foundation. Building an effective team requires strong leadership skills that build trust, develop the force, and inspire performance at the unit level. A strong tactical foundation rests with the strength of its people. Empowering them and providing them the right tools to be successful keeps the team proactive and looking for ways to improve services and support to the units they support. Their impact on the wing's capabilities and performance must never be underestimated. Comptrollers constantly must communicate their importance, link it to the wing's vision, and inspire their team to execute.

With a strong tactical foundation, comptrollers can focus on developing a financial game plan to maximize the capability requirements of the wing. This is a total wing effort requiring the comptroller to develop strong relationships with fellow commanders and the senior staff. The entire comptroller team must be engaged and visible in the organizations to gain a strategic perspective of the units' capabilities and requirements. Comptrollers must be able to provide the Air Force and command's strategic picture and build financial strategies to link the wing's requirements to those goals. The comptroller must be a consensus builder, be able to achieve buy in with other commanders, and then become an effective strategic implementer of the wing commander's vision and strategy. This solidifies the strategic partnership needed to leverage limited resources to maximize wing capabilities.

The intent of this article was not to provide a checklist on how to become an effective comptroller. It was written to provide ideas and thoughts on developing skills to lead in the tactical, operational, and strategic environments simultaneously. The goal was to help create a leadership mindset that will focus comptrollers on the need to build high-performance teams, the

value of creating coalitions with fellow commanders, and the importance of creating a strategic partnership with the wing commander. What is most important is the value of comptroller leadership in today's environment of limited resources and high operations tempo. Success will be measured by how well financial managers apply resources to execute the vision and mission across the full spectrum of operations. With this focus and leadership skills that emphasize people, performance, and results, financial managers can become proactive force multipliers for all Air Force operations.

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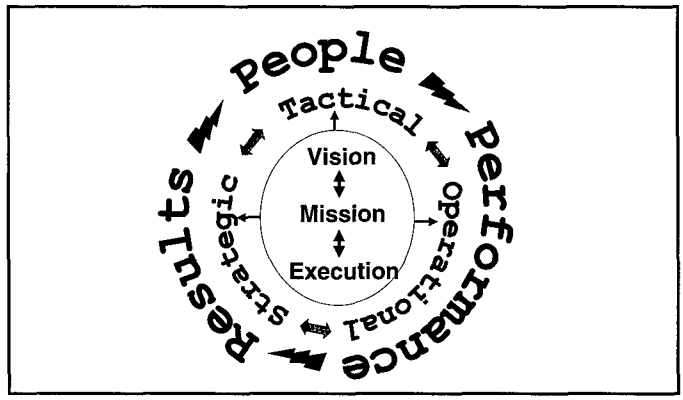

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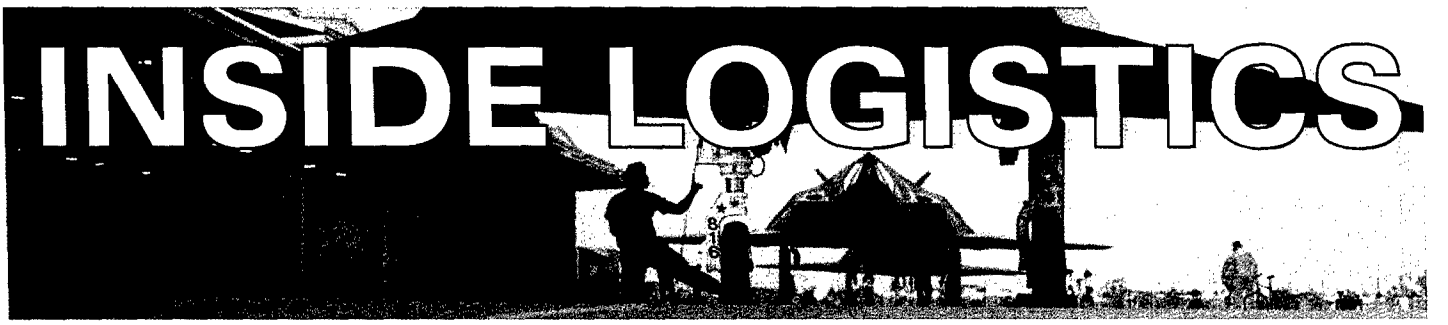


EXPLORING THE HEART OF LOGISTICS

Air Force Logistics Management Agency

Colonel Sean P. Cassidy, USAF
Lieutenant Colonel James C. Rainey, USAF, Retired
Cindy Young

The AFLMA

The AFLMA—Air Force Logistics Management Agency—is located at Maxwell AFB, Gunter Annex, Alabama. We're a logistics problem-solving agency. Since its inception, the Air Force Logistics Management Agency has grown to be recognized for its excellence—excellence in providing answers to the toughest logistics problems. And that's our focus today—tackling and solving the toughest logistics problems and questions facing the Air Force. It's also our focus for the future.

Lots of organizations have catchy mottoes. Likewise, many have catchy vision statements. We do, too. But there's a big difference—we deliver on what we promise. *Generating Solutions Today, Shaping Tomorrow's Logistics* aren't just words to us; they're our organizational culture. We use a broad range of functional, analytical, and scientific expertise to produce innovative solutions to problems and design new or improved concepts, methods, systems, or policies that improve peacetime readiness and build war-winning logistics capabilities.

Our key strength is our people. They're all professionals from logistics functions, operational analysis sections, and computer programming shops. Virtually all of them have advanced degrees, some of which are doctorates. But more important, virtually all of them have recent field experience. *They've been there and done that.* They have the kind of experience that lets us blend innovation and new technology with real-world common sense and moxie.

Within the Agency, we have four product divisions: Maintenance and Munitions, Supply, Contracting, and Logistics Readiness, along with the Logistics Analysis Division. The Analysis Division provides state-of-the-art and leading-edge computer support, analysis, and modeling and simulation capabilities.

Anyone can submit a proposed project, problem, or area for study to the AFLMA, but it must be channeled through the appropriate command director of logistics (LG) or the Council of Directors (CoD). Before a study or research effort can be started, it must be sponsored by a command LG or CoD member. Upon receipt, the proposed study undergoes an extensive preliminary analysis and is submitted to the AFLMA Commander for approval. If we can't accomplish the project, we'll suggest other agencies that may be better suited for the task. When a project is accepted for study, one of our project managers assembles a cross-functional team to

(Continued on page 54)

AFLMA Goals

- **Lead transformation efforts**
- **Continue to respond to the revolutionary and evolutionary changes in logistics**
- **Continue to lead in developing robust, tailored answers to the most complex Air Force problems**
- **Provide quick-turn support for critical studies and projects (less than 6 months)**
- **Support the Air Force logistics community and professional military education schools with high-quality publications**

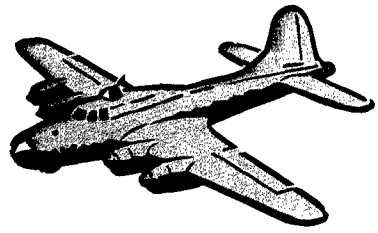
Vandenberg's plan would be rebuffed, but the rising star remained heavily involved in Air Corps planning in the Pacific, as his ideas held fast as the conceptual framework for the defense of the Philippines—a framework that would place America's newest and most capable bomber on the archipelago and, in doing so, forever change the life of a young B-17 pilot named Melvin McKenzie.

logistics history

The Early Pacific War: He Fought with What He Had

The title of this article is apropos. In a phrase, it signifies the fact that the outnumbered Americans (and their allies) did their best—at times serving downright heroically—despite fighting in a second-priority theater with *shoestring* logistics. Whether it was cannibalizing aircraft parts to put together a bomber that would make even Mary Shelley proud, using lawnmowers to service B-17s with oxygen, or just plain making multiple bombing passes on Japanese troop ships—even though the odds were dead set against them—the story of the first months of the Pacific war is one of endurance, long-suffering, and chutzpah, and all in the face of certain defeat. It is also this story that is personified in the life of McKenzie, a regular American who did nothing more than his duty. But while duty executed in the midst of pending victory is laudable, duty executed in the midst of failure is truly valorous.

he fought with what he had
The Early Pacific War



Like many Americans during the 1920s and 1930s, McKenzie was excited by the prospects of flight and the sense of adventure provoked by the airplane, as one historian has argued that it was during this time that Americans were embracing a *winged gospel.*

Introduction

In the summer of 1939, an ambitious Air Corps officer named Captain Hoyt Vandenberg had just completed the Army War College at Carlisle Barracks, Pennsylvania, and reported for duty as part of the War Department's Plans Division in Washington DC. Personally called to this assignment by then Lieutenant Colonel Carl "Tooey" Spaatz, the 40-year-old Vandenberg set about to prepare one of five secret studies regarding the Air Corps' portion of the plan to defend the Philippines in the face of growing tensions with Japan. This was a task for which Vandenberg was uniquely suited, as he had written a report at the War College advocating the use of nearly 400 pursuit and bomber aircraft to defend the Philippines, as well as act as an offensive force for attacks against Japan, should war erupt in the Pacific. The plan was bold and ambitious; it called for more bombers than were located *anywhere* in the Air Corps, and it bore all the marks of contemporary airpower thought and doctrine that advocated the emerging notion of victory via airpower alone. In the end, Vandenberg's plan would be rebuffed, but the rising star remained heavily involved in Air Corps planning in the Pacific, as his ideas held fast as the conceptual framework for the defense of the Philippines—a framework that would place America's newest and most capable bomber on the archipelago and, in doing so, forever change the life of a young B-17 pilot named Melvin McKenzie.[1]

McKenzie and his unit, the 19th Bomb Group (Heavy), had been moved to Albuquerque, New Mexico, in the summer of 1941, only a few months before Vandenberg and a host of other Air Corps notables had completed the air portion of what would become the War Department's final plan for the Philippines prior to war, assigning the 19th to the northern-most island of Luzon that September. The trip across the Pacific would be unprecedented, as it marked the farthest deployment of US bombers anywhere in the world. Tragically for the Americans, though, two-thirds of the men who traveled with McKenzie that summer were either killed or captured by the Japanese over the next year, as the Centrifugal Offensive—conducted with overwhelming force—sent American and Allied troops reeling in what would later be labeled the Southwest Pacific Area. Japanese speed and mass were aided by weak American preparations and poor decisionmaking at key junctures, forcing McKenzie, the 19th Bomb Group, and the rest of the US forces into a fighting retreat that would back-pedal all the way to Australia.[2]

Young Melvin McKenzie

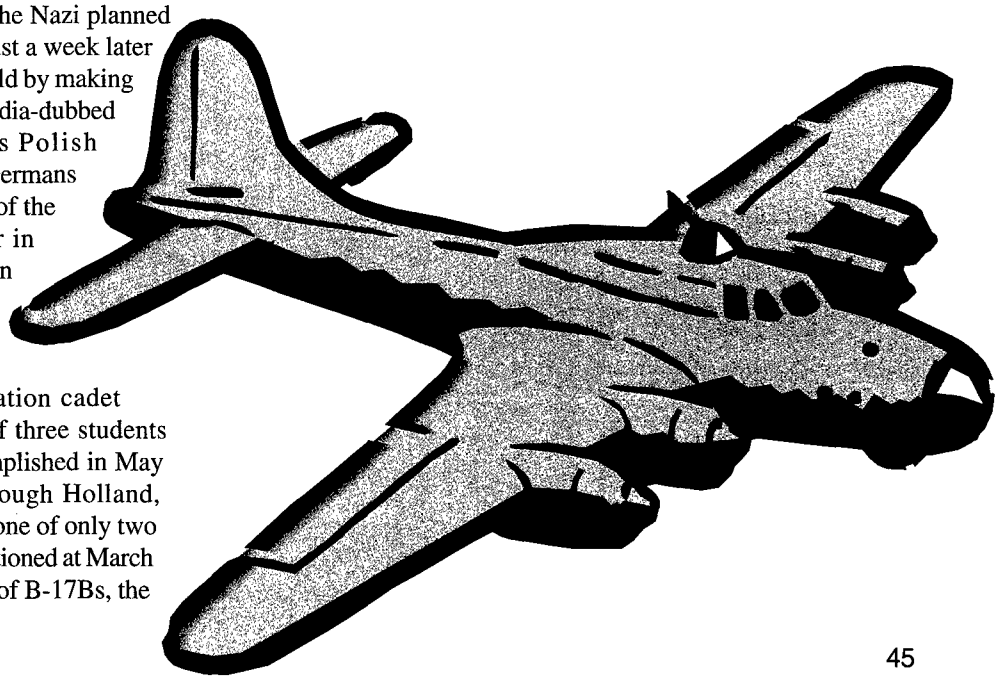
McKenzie was born 3 February 1916 in Monmouth, Maine, and though his surroundings were nondescript, the world he entered was in the throes of war. In Europe, the so-called *Fokker Scourge* was underway as Oswald Boelcke laid waste to Entente airplanes over the skies of France, with the war's most ghastly offensive—Verdun—getting underway the same month. In the United States, President Woodrow Wilson began running for reelection under the slogan, "He kept us out of the war," though the memory of the

Two-thirds of the men who traveled with McKenzie that summer were either killed or captured by the Japanese over the next year, as the Centrifugal Offensive—conducted with overwhelming force—sent American and Allied troops reeling in what would later be labeled the Southwest Pacific Area.

Lusitania and the threatening implications of German unrestricted submarine warfare would change all this. At the age of 5, McKenzie saw his first plane, a Curtiss *pusher* biplane, and from that time forward, he knew that he wanted to fly. It is no surprise that his earliest dreams were of flight, as he grew up *with* aviation, having Charles Lindbergh as his childhood hero.[3] Like many Americans during the 1920s and 1930s, McKenzie was excited by the prospects of flight and the sense of adventure provoked by the airplane, as one historian has argued that it was during this time that Americans were embracing a *winged gospel*.[4] And while flying was McKenzie's dream, he would attribute much of his later success as an Air Corps officer to scouting, as his training while becoming an Eagle Scout served him well. Surviving in the White Mountains of New Hampshire—though radically different in climate and topography from the tropics—was not too far afield from the austerity of the southwest Pacific.

In the mid-1930s McKenzie completed studies at St Johnsbury Academy in Vermont, a college prep school. It was here that he recalls the motivating words of a chemistry teacher who spurred his students on by saying, "The world deals harshly with the weak willed, the unskilled, and the ignorant." Not wanting to fall into any of these categories, McKenzie pushed himself all the more. He then graduated from the University of Maine in 1939, earning his bachelor's degree in mechanical engineering and gaining a reserve commission in the Infantry. All this, McKenzie recalls, prepared him for the dangers of combat he would experience sooner than he thought imaginable.[5]

Late in August of the same year—just months after McKenzie's graduation from college—German Foreign Minister Joachim von Ribbentrop concluded the terms of a nonaggression pact with Joseph Stalin in Moscow that would serve to secure Hitler's eastern flank in the wake of the Nazi planned offensive into Poland, an offensive that came just a week later on 1 September. Hitler's forces shocked the world by making short work of Polish land and air forces as the media-dubbed *Blitzkrieg* rolled through the featureless Polish countryside, meeting with Soviet forces—the Germans *fair weather* ally—at Brest-Litovsk by the end of the month.[6] It was just after this start of the war in Europe that McKenzie began pilot training in Texas as the Air Corps, as well as much of the US military establishment, was beginning to make preparations for war.



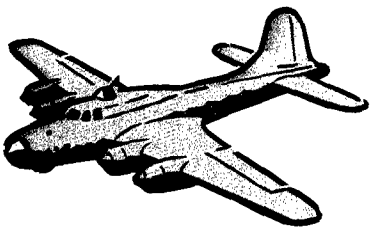
McKenzie trained under the Army's aviation cadet program, from which initially only one out of three students succeeded in graduating—something he accomplished in May 1940, just as the Germans were moving through Holland, Belgium, and France. He then was assigned to one of only two heavy bomb groups in the Air Corps, the 19th, stationed at March Field, California. The 19th had three squadrons of B-17Bs, the

first operational model of that front-line bomber, though shortly after his arrival, the squadrons began taking delivery of C models that were capable of flying higher and faster, carrying more armament and guns. And though the war in Europe was well underway, it would be in the Pacific that both America and McKenzie would find themselves first at war.[7]

Japanese Moves and American Counters

In 1823, Japanese writer Sat-o Nobuhio penned a piece titled *Kondo Hisaku*, "A Secret Strategy for Expansion," asserting jingoistically that "Japan is the foundation of the world" and that the states of the world should be made "provinces and districts of Japan." Though this work predates the Japanese rush to modernization under the Meiji Restoration by more than 4 decades, prominent Japanese scholar Saburo Ienaga perceptively points out that these ideas of military aggression that percolated in feudal Japan provided the *wellspring* for what would become the idea of the Greater East Asian Co-Prosperity Sphere a century later.

The Meiji Restoration of the 1860s sought to industrialize and militarize a country that had been an isolated island-nation for more than 2 centuries, by using the British model for its navy and the Prussian model for its army. With industrialization also came an upsurge in foreign trade, as resource-limited Japan began to look outside of itself for expansionist opportunities that would solve its own lack of natural supplies. This matter came to a head in 1929 during the Great Depression, as Japan was especially hard hit, triggering its exceedingly nationalistic army to orchestrate events leading to a 1931 incursion and annexation of Manchuria by the Japanese army in Korea. Thus began what Ienaga calls Japan's *Fifteen Year-War*.[8]



In May 1941, the Army Staff called for the movement of 21 brand-new B-17Ds to the Hawaiian Islands, a 2,400-mile trip that broke all existing records as the longest over-water flight ever conducted by land-based aircraft.

With a growing hunger for resources, a 1933 Japanese Army memo read, "The natural resources of Manchuria are far exceeded by those in North China. There are limitless deposits of iron and coal in Shansi province. If we are not careful, these resources will end up in English or American hands."[9] This drive eventually would lead the Japanese army to manufacture an incident at the Marco Polo Bridge in 1937 that gave way to a broader war into China, one which saw direct military opposition by the Chinese Communists and Soviets, as well as economic moves by the United States. Then in the summer of 1940, when Germany rolled through Western Europe, Japan took the opportunity to make advances south into Indochina (gaining rice, coal, and rubber) with the tacit approval of the Vichy French government, a move that was clearly a threat to British and Dutch colonial holdings in Southeast Asia and the Southwest Pacific. In response, the United States leveled an export embargo against Japan, which included its most critical war supply—oil. The die was cast, as the Japanese were now put in the position of either withdrawing from China or expanding their sphere of influence. They would choose the latter.[10]

The American position in the Pacific was somewhat more precarious; the United States had seized the Philippines from the Spanish in 1898, providing a significant lodgment in the event of war with Japan. But there was one major problem—the archipelago was difficult to supply considering it was 7,000 miles from the coast of California and 5,000 miles from Hawaii. This was addressed by war planners, as the United States had a series of plans in place to deal with an array of potential adversaries, and the plan to counter Japan was dubbed plan *Orange* (other plans similarly held color coded names, such as Red for Great Britain, Black for Germany, and Green for Mexico). After World War I, the Joint Army and Navy Board (the predecessor of the Joint Chiefs of Staff) reviewed all the prewar plans to ensure they were consistent with the current state of affairs in the world, and it was here that the Board realized that, in the event of war with Japan, the Philippines were in a hopeless situation. The Board determined that Japan could flow nearly 300,000 men into the Philippines within a month, spelling disaster for a combined American/Filipino force of only 17,000. And as no one was willing to table the idea that the Philippines should be abandoned by the United States, the revised plan published in 1924 was one founded on hope, as

American forces were called to hold Manila Bay as long as possible until superior US naval forces could arrive.[11]

In the late 1930s as war clouds loomed large, the Joint Board began to look at different variations of the war plans, calling them *Rainbow* plans as they dealt with a combination of adversaries. Of the Rainbow plans, it was Rainbow 5 that accounted for war with Germany and Japan, calling for the United States first to dispatch the bulk of its weight in Europe before launching a final offensive against the Japanese. This *Europe First* strategy—finally agreed upon with Great Britain at the Arcadia Conference in December 1941—was motivated primarily by the fact that, quite frankly, Germany was winning the war in Europe and, therefore, needed to be dealt with soonest. The flip side of this was the fact that Japanese aggression in the Pacific was seen as a central threat to Britain's Asian empire, a threat that posed grave consequences for American security. As Admiral Harold Stark, Chief of Naval Operations, just prior to America's entrance into the war stated, "If Britain wins decisively against Germany, we could win everywhere; but if she loses...while we may not lose everywhere, we might, possibly, not *win* anywhere."[12]

With the Philippines sitting directly astride the route for a possible Japanese invasion of Malaysia and the Dutch East Indies, Secretary of War Henry Stimson called for a bolstering of US military might on the archipelago, a strengthening that would come in three main forms. First, General Douglas MacArthur was recalled from retirement to act as the commander of all forces in the Philippines, a move that was meant to impress Japan, as the former Chief of Staff of the Army carried all the notoriety of a living legend. Second, land forces were organized into US Army Forces, Far East (USAFFE), combining American forces with the newly mobilized Philippine Army; it is noteworthy to mention that MacArthur wanted Washington to give him the men and material to build up this army, as he was not content to allow the Japanese have their way with the Philippines. Ambitiously, MacArthur argued that he could meet and defeat a Japanese invasion. The third and final move taken to strengthen the Philippines was to beef up the air forces on the island, a move that bore the fingerprints of the earlier mentioned Vandenberg, as B-17s would be deployed to the islands to serve a twofold purpose: act as a deterrent force against any Japanese moves south and put in place a force capable of launching offensive missions against Japanese shipping and bases in the Pacific.[13]

McKenzie, the Philippines, and the Coming of War

As a result of these moves to strengthen the Philippines, Lieutenant McKenzie took part in a recordbreaking flight as a crewmember on the first-ever ferry mission from California to Hickam Field, Hawaii. In May 1941, the Army Staff called for the movement of 21 brand-new B-17Ds to the Hawaiian Islands, a 2,400-mile trip that broke all existing records as the longest over-water flight ever conducted by land-based aircraft. During the mission, McKenzie served as both a navigator and a backup pilot (pilots were trained in each of the positions of the aircraft, to include bombardier, navigator, radio operator, and gunner. Subsequently, many of McKenzie's early missions with the 19th were as a navigator, after which he was awarded the Distinguished Flying Cross as the flight truly was a pioneering venture, validating the strategic mobility of the B-17. After conducting some training with the crews who were taking receipt of the bombers, McKenzie and his comrades returned home by ship.[14]

Just a week after McKenzie's return to the States, the 19th was ordered to move to Albuquerque, New Mexico, as the Air Corps staff, leery of a possible Japanese attack on the California coast, felt the bombers would be safer if moved inland. McKenzie started serving as the group's material officer (a logistician in today's parlance) as the group continued to get new B-17Ds from the Boeing factory. But if the command-directed move to New Mexico was meant to provide a safe haven for the bombers, the decisions brewing in Washington DC would thrust the group into harm's way.

As previously mentioned, the air strengthening of the Philippines was meant to have a deterrent effect on Japan. The air forces in place on the islands early in the summer of 1941 were really nothing to speak of, as they were assessed to be unable to handle "even a mildly determined and ill-equipped foe," as bomber aircraft included the B-10, a few B-18s, with several P-26 *Peashooter* pursuit planes. The newly formed Army Air Forces (AAF) plan sought to dramatically alter this, though, as on 17 July General Henry "Hap" Arnold, the AAF Commander, called for the placement of four heavy bomb groups (consisting of 272 aircraft) in the Philippines, with another 68 bombers in reserve, to be complemented with two groups of P-40s, comprised each of 130 aircraft. These numbers simply did not exist *anywhere* abroad in the Air Forces, but the figures demonstrated that the priority was in place to get the newest equipment to the Philippines as soon as it came out of the factory.[15]

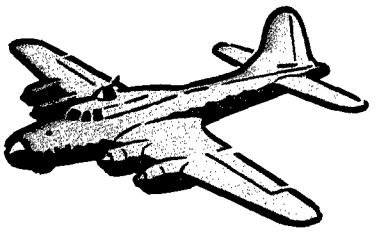
The vanguard of the heavy bomber buildup was to be the 19th Bomb Group, which was to be permanently reassigned to the Philippines beginning in early September. And while the group made preparations for its trek across the Pacific, a provisional squadron from the Hawaiian Air Force (made up of bombers delivered earlier by McKenzie and company) was selected to forge a route from Hawaii to the Philippines. The planning for the mission was accomplished under tight security, as airfields were surveyed and the nine crews who were slated for the mission made preparations for the historic flight. On 5 September, the formation took off from Hickam, stopping at Midway, Wake Island, Port Moresby, and Darwin, before arriving at Clark Field the morning of the 12th. There were tense moments along the way, as the leg from Wake to Port Moresby had the planes flying over Japanese-mandated islands. To handle the issue, the bombers flew the leg so as to arrive over the islands at night, flying blacked-out, in complete radio silence, and at 26,000 feet as opposed to the normal 8,000-foot cruise altitude. Additionally, on the leg from Darwin to Clark, the crews encountered heavy thunderstorms and were forced to fly in storm echelon at only 100 to 400 feet above the water. Regardless of the challenges, the bombers arrived safely, proving that the Philippines could be reinforced by air.[16]

With this somewhat risky air route to the Philippines secured (a new southern route would be surveyed months later to avoid the Japanese mandates), it was now time to get the bulk of the bombers, the 26 B-17s of the 19th, to the archipelago. On 16 October, the group began its mission, flying first to Hickam, as McKenzie was selected to be the navigator and relief pilot for the group commander, Lieutenant Colonel Eugene Eubank. McKenzie recounts how the colonel gave him his final checkout as a B-17 pilot just before departing for Hawaii and how the start

of the trip was not as routine as the young pilot would have liked. It seems that on the initial leg from Albuquerque to Hamilton Field (located near San Francisco) there was a gauge problem while conducting a fuel-consumption check. And because fuel-gauge accuracy was so critical for obvious reasons, Eubank had McKenzie verify the endurance capability of the bomber manually, by flying for 12 hours along the California coast to ensure the gauges were reading correctly (while Eubank grabbed his golf clubs and hopped on another bomber, promising to meet McKenzie in Hawaii!). The manual check of McKenzie's plane went fine, clearing him to make the 2,000-mile trip to Hawaii; all told, counting from when he left New Mexico to his arrival in Hawaii, McKenzie had totaled 36 flight hours in just 2 days!

From Hawaii, the 19th took the same route through Midway, Wake, Port Moresby, and Darwin, though encountering much poorer weather than the Hawaiian Air Force predecessors; engine problems were an issue as well, as 2 of the 26 bombers needed engine swaps in Darwin.[17] Despite the difficulties, the 26 bombers arrived at Clark Field on the morning of 3 November, accomplishing a Herculean aviation feat by traveling more than 10,000 miles—as an entire Bomb Group—in 17 days. Their arrival at Clark was quite unceremonious, though, as the crews parked their planes in vacant spots on the cluttered airfield, then went to get themselves settled at Clark's rugged accommodations for what they supposed would be the next 3 years.[18]

On the afternoon of the following day, Major General Lewis Brereton, the new commander of what would become the Far East Air Forces (FEAF)—MacArthur's air force—arrived in a Pan American flying boat after being delayed by poor weather along the same route taken by the 19th. Among the items, Brereton brought his new commander a secret letter from Army Chief of Staff George Marshall, updating MacArthur on his mission in the Philippines. The revised orders called for the use of "air raids against Japanese forces and installations within the tactical operating radius of available forces," news that elated MacArthur as it reflected a shift in strategy, from one that called only for the defense of the Philippines, to one where "offensive air operations in the furtherance of the strategic defense" were allowed. To prepare for this, Brereton needed to get a good picture of the air force facilities and infrastructure in his theater, so MacArthur gave him time to survey the FEAF airfields and depots in the Philippines. MacArthur also sent Brereton to Australia to establish a working relationship with the Royal Australian Air Force (RAAF), preparations that later proved important, as FEAF would be forced to retreat all the way to Australia.[19]



There had been an effort to boost the air defense capability of Luzon, but even so, the placement of antiaircraft guns was so-so, and the weak radar coverage of the island had to be augmented by ground observers.

Brereton departed for his trip *down under* 16 November in a B-17 piloted by Eubank, the 19th's commander, with McKenzie acting as both copilot and navigator. The entourage returned to Clark 26 November, and as the trip was labeled a success, MacArthur was well-pleased with Brereton's work in coordinating plans with the senior leadership of the RAAF. He asked his air commander to repeat the trip departing in the next couple of days but this time to Singapore and the Dutch East Indies. The trip, however, would never materialize as MacArthur received a secret cable from Marshall the next day informing him that the Japanese looked to be breaking off diplomatic relations and to be prepared for war. Additionally, Marshall reminded MacArthur of the fact that he was to allow the Japanese to make the first overt act—a point that would later figure prominently in the supreme commander's thinking—and that McArthur was also approved to conduct any reconnaissance he deemed necessary.[20] As a result of this message, the Philippines went on 24-hour alert.

Over the last few months, there had been an effort to boost the air defense capability of Luzon, but even so, the placement of antiaircraft guns was so-so, and the weak radar coverage of the island had to be augmented by ground observers (there was one operational radar unit, located at Iba, when the Japanese attacked). The most effective air defense was a passive measure that moved two squadrons of the B-17s to an auxiliary field just outside the Del Monte pineapple plantation on the southern island of Mindanao on 5 December.[21] Tensions continued to rise as the Japanese made high-altitude reconnaissance flights over Luzon on 4 consecutive days beginning 2 December. There was a strong sense that war was coming, as McKenzie recalls that

even "brazen Japanese nationals living in Manila openly boasted that they would soon rule the Philippines."[22]

Japanese Attack on the Philippines

Shortly after 3 AM on the morning of 8 December, a commercial radio station picked up news of the Japanese attack on Pearl Harbor (note that Hawaii and the Philippines are on opposite sides of the date line, so 3 AM at Clark on Monday was 8:30 AM on Sunday in Hawaii).[23] At about the same time, cryptographers at FEAF's communication center decoded a message from the Hawaiian department that read, "Attention all commanders. Japan has begun hostilities. Conduct yourselves accordingly."[24] McKenzie was the night shift duty officer at Clark Field, and received the message of the attack. Eubank then alerted his crews, as they were sure to be launched on bombing missions against Formosa as soon as it was daylight. Thirty minutes after the warning, the radar set at Iba Field detected a formation of airplanes about 70 miles off the west coast of the Philippines. The 3d Pursuit Squadron was dispatched to intercept the inbound *unknowns*, but the P-40s never made contact as the suspected enemy formation reversed course and headed west.[25]

Brereton was awakened just after the message came through, and after receiving a personal phone call from General Sutherland (MacArthur's chief of staff), he got dressed and reported to USAFFE Headquarters in Del Carmen at about 5 AM. The FEAF Commander wanted approval to attack targets on Formosa using the 19 bombers at Clark. While bringing the 16 bombers up from Del Monte to be fueled and armed for a second wave of attacks, Brereton was met by Sutherland who told him that MacArthur was in a conference and could not be bothered but that Brereton should go and make preparations to execute his plan, launching no attacks until he had MacArthur's approval.

Brereton returned to USAFFE Headquarters 2 hours later, hoping to see MacArthur or at least have an answer for his request to launch bombing missions.[26] Once again, MacArthur refused to see his Air Forces commander, as Sutherland informed him that, though the general was alone, he was not to be disturbed. An irritated Brereton pressed Sutherland, who consented to asking MacArthur himself of the request. Emerging from MacArthur's office, Sutherland told Brereton, "The General says no...don't make the first overt act." Brereton was outraged, as he insisted that the attack on Pearl Harbor *was* an overt act, but Sutherland would not budge. As such, a disgusted Brereton returned to Nielson Field (the location of FEAF Headquarters) to tell his junior commanders what they were—or rather were *not*—going to do.[27]

Brereton was back at FEAF Headquarters by 8 AM, as the news of his meeting completely flummoxed his staff, Eubank, and the rest of the senior leaders. How could MacArthur *not* consider the attack on Pearl Harbor an overt act? Nevertheless, the FEAF Commander opted to do anything he could, so plans were made to launch a three-ship of B-17s to conduct a photoreconnaissance mission over Formosa to determine the point of greatest Japanese strength. Brereton then called Sutherland again to see if MacArthur had changed his mind, but Sutherland called back just before 9 AM, telling him to "hold off bombing Formosa for the present."[28]

Back at Clark, there were unverified reports of inbound Japanese aircraft, prompting Major David Gibbs, the acting commander of the 19th while Eubank was at FEAF Headquarters, to order all the bombers aloft so as to not get caught on the ground. Additionally, the pursuit groups at Clark also took off, a situation that was nearly catastrophic, as there were no established procedures for the fighters and bombers to take off together, and planes were crisscrossing each other on the ground even on takeoff roll. Nevertheless, the fleet got airborne by about 9:30 AM without incident and was advised to remain close enough to base to be in radio contact with the control tower at Clark.

Back at FEAF Headquarters, Brereton made another call to Sutherland at 10 AM, but the story was still the same; this was simply unconscionable to Brereton, who had been notified that the Japanese had bombed Tarlkac and Tuguegarao, positions north of Clark, just 30 minutes prior. So incensed was the FEAF Commander that he had his chief of staff, Colonel Francis Brady, make a note of his conversation with Sutherland. Nevertheless, Brereton dispatched Eubank to return to Clark and prepare his group for a possible mission should MacArthur have an unexpected change of heart.

Much to Brereton's surprise, the change of heart did come and sooner than he imagined. MacArthur personally called Brereton at 10:14 AM (speaking to him for the first time since the news of Pearl Harbor), and now, not a quarter of an hour after he had just hung up with Sutherland, MacArthur gave Brereton permission to launch his desired attacks. The FEAF Commander was ecstatic, as he and his staff determined that there was still enough daylight to hit Formosa, fleshing out the plan by 10:45 AM. Back at Clark, planes were ordered to land so that they could load bombs, refuel, and get the crews smart on the mission. The launch time was scheduled for 2:00 PM as the group readied itself for what it had come to do in the Philippines—strike Japanese targets!

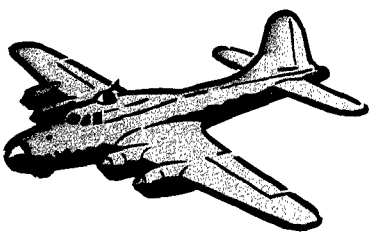
The planes were back on the ground from the earlier scramble by noon, as most officers headed to the officer's mess to get some lunch prior to the mission. McKenzie stayed back at group headquarters tracing classified sketches of Japanese airfields on southern Formosa to be used by navigators preparing to fly. McKenzie recalls hearing Manila radio report that the Japanese must have hit Clark, as there was no news coming from the base. "Idle speculation," chortled McKenzie, as he only heard the sounds of birds singing. But only moments later came a series of thunderous explosions, as 54 Japanese *Betty* bombers, flying in two separate V formations, laid strings of bombs across the airfield. McKenzie grabbed his helmet and got outside, taking cover in a slit trench, as Zeros came in low on strafing runs.[29] The bomb pattern was so well planned that much of the field was damaged, as one eyewitness said, "A person could not walk more than 30 feet in one direction without walking into a bomb crater."[30] Additionally, 17 of the 19 B-17s at Clark had sustained damage (12 of 17 damaged planes were destroyed), though less by bomb damage and more by the strafing runs. McKenzie was glad he had skipped lunch that day, as the officer's mess took a direct hit, killing 50 men.[31]

After the dust settled, the extensiveness of the damage to Clark was clearly seen, as the bombing destroyed hangars, supply buildings, the communications center, shops, and barracks. One place that was missed was the camouflaged fuel dump—a Japanese mistake that would allow Clark to remain in use, as B-17s from Del Monte would fly north to be fueled and armed for attacks against the invasion fleet (bearing an eerie resemblance to the unscathed fuel pits during the attack on Pearl Harbor). One

of the fatalities in the attack was the group materiel officer, McKenzie's immediate boss; now the young lieutenant would fill that role, supervising the fueling and maintenance of B-17s that would soon be staging from Del Monte. With much of the equipment destroyed, McKenzie was forced to improvise with fueling methods, oxygen servicing, and spare parts, ensuring that bombers returning to Del Monte were loaded with the cannibalized parts for broken airplanes down range. All in all, Clark was a disheveled shoestring operation that made the most of anything available to help slow the Japanese advance—an advance that would force the evacuation of Clark by Christmas Eve.[32]

The Retreat from Luzon to Darwin

Within days of the initial air attacks on the Philippines, the Japanese conducted amphibious landings on the northern and southern parts of Luzon. To support the ground defense, FEAF used pursuit aircraft to conduct reconnaissance and bombers—those few that remained—to try to stem the tide of Japanese shipping that was delivering men and materiel to Luzon on a near-daily basis.[33] But this effort was too little too late, as Clark was all the more hazardous to operate from as it was on the Japanese bombing route to Manila and, thus, proved a juicy strafing target for enemy fighters returning to bases in the north.[34] Nevertheless, those still at Clark did their best to defend themselves while they went about the business of salvaging parts from damaged aircraft to be transported to Del Monte. The nail in the coffin, however, came on 22 December when Japanese forces landed unopposed at the Lingayen Gulf, only 120 miles north of Manila. Two days later, on Christmas Eve, FEAF ordered the evacuation of Clark, as the 19th Bomb Group was moved by truck to the Bataan Peninsula. The remaining Americans then scuttled the base, as buildings were burned and bombs and fuel tanks exploded. In the words of the 19th's acting commander, "They closed the gate and threw away the key." The Japanese would arrive at the remains of Clark within a week.[35]



Broadly speaking, the Japanese offensive through the Philippines to the East Indies and the Malay Peninsula had been successful beyond their wildest dreams.

The unit arrived at the port town of Mariveles, as plans had been set to evacuate to Mindanao via two interisland ferryboats. Unfortunately, though, Japanese fighters had strafed and sunk one of the boats, so only half of the men were able to depart. Those who remained would either be killed in action or would surrender and be forced to suffer the Bataan Death March. Those who were evacuated did so on the *Moyan*, as the ship's captain moved only at night and hid in secluded inlets during the day. Even so, the boat was spotted and bombed by the Japanese (sustaining considerable damage) but was still was able to reach Mindanao by New Year's Day.

The group made its way to Del Monte, where there were no B-17s (they had already been evacuated to either Java or Australia) and only two damaged B-18s. Tents were set up as McKenzie used his Army Reserve Officer Training Corps training to organize the men into squads and platoons so they could establish up a meager defense of their position with available rifles and machineguns. Neither B-18 was flyable, but mechanics set out to cannibalize parts from one to get the other flying; the major obstacle, though, was the fact that the B-18s had no internal bomb-bay fuel tank for the long flight to Darwin. To overcome this, they successfully rigged 55-gallon drums in the bomb bay, plumbing them to the fuel system to make an improvised fuel tank. A crew was able to get to Darwin, and shortly afterwards, B-17s began flying sorties into Del Monte to evacuate the rest of the unit. As a part of this effort, McKenzie flew out to the Dutch East Indies 20 January.[36]

The remnants of the 19th were now set up at a Singosari Field, a Dutch base near the city of Malang on the eastern edge of Java. Brereton and his staff thought this position afforded relative safety from Japanese attack but also put his bombers within reasonable striking distance of enemy positions. It was here that McKenzie became the unit's assistant engineering officer with the responsibility of getting as many airplanes ready to fly on any given day; this was also the place where he would first get back behind the controls of a B-17 since his survey trip to Australia with Eubank and Brereton—a trip that now seemed to be bearing dividends as it had given FEAF a snapshot of what

to expect should they have to retreat, something they were now doing in spades.

McKenzie flew four missions in his first 8 days on Java, but the missions were grueling, considering the meager damage they promised to the enemy. One typical example will suffice: Singosari on Java was a good position, though it was approximately 1,500 miles from the nearest target at Davao (on Luzon). This meant that an intermediate field was necessary, with Samarinda on Borneo serving as the stopping point. So on one particular mission, bombers left Java 3 January and landed on Borneo, where they were serviced with 2,000 gallons of fuel and four 600-pound bombs. Then the planes departed the next morning to hit the ships harbored at Davao (where they reportedly sank one destroyer), then returned to Borneo, spent the night, and returned to Java the next day. In the end, it took 3 days of flying to drop less than 10 tons of bombs and also sucked dry—in a single mission—the fuel at the staging base at Samarinda.[37]

The Japanese continued to press their offensive to the south, attacking Borneo in early January, and then taking Kendari as a staging base by the middle of the month, a position that put Japanese fighters and bombers well within rage of Malang and eastern Java. On 3 February, the air raid sirens went off for the first time at Malang as *Zeroes* destroyed four American bombers—loaded and fueled—on the ground, shooting down another flying nearby. Two weeks later, McKenzie was at the airfield when a formation of B-17s was returning from a mission. No sooner had the bombers landed when a flight of ten Japanese *Zeroes* attacked the field. McKenzie was near the hangar line when the first fighter opened fire on a nearby bomber, hitting one of its crewmembers, Lieutenant. James Ferry, with an explosive shell. With complete disregard for his own safety, McKenzie and two other comrades grabbed Ferry and raced him to a nearby shelter under the constant hail of bullets. For this act of heroism, McKenzie was awarded the Silver Star. Nevertheless, the raids persisted as the Japanese 21st Flotilla continued to bear down on Java.[38]

As the Japanese attacks continued, the first B-17E arrived in theater to augment the meager force of five bombers. Among other things, the E model surpassed its predecessors in terms of firepower, as it had a ball turret; a powered top turret; and most significantly, tail guns. Eubank then pressed the plane's ferry crew into service, as they flew as part of an attack formation the following day. McKenzie recalls the E model scoring five kills on that single mission![39] Despite these limited successes, the Japanese had gained a foothold on oil-rich Borneo and, by 1 March, had landed on Java. It would not be much longer when the entire Dutch East Indies would fall, as the first echelons of the bombers at Malang began to move to Australia.

Modest Reprisals

Broadly speaking, the Japanese offensive through the Philippines to the East Indies and the Malay Peninsula had been successful beyond their wildest dreams. And it was largely because of this that they strategically altered their original plans in the spring of 1942 by extending their offensive both south and east (New Guinea and Midway, respectively), rather than establishing the previously planned defensive perimeter.[40] The biggest problem for the Japanese was what to do about Australia, as it would certainly be used as a launching point for an Allied counteroffensive. And while the seizure of the continent was impossible for the Japanese Imperial Army to support, planners thought that Australia could be knocked out of the war and that Port Moresby was the key position to this end, as it was, in the words of Richard Watson, "the last barrier guarding the northern approaches to Australia."[41] It was this strategic context that moved allied decisionmakers to plan for the defense of Australia, as airpower would be called upon first to attack the Japanese buildup at Rabaul and second at the Coral Sea.

McKenzie had caught one of the last B-17s from Java to Australia, as he flew first to Broome on the northwestern coast, then Melbourne on the opposite end of the country where he was able to enjoy some rest and recuperation.[42] From here, he met up with the 19th at Cloncurry, a dry and dusty field that was 1,000 miles north of Brisbane and 1,000 miles south of Darwin. The logical target for the bombers was Rabaul in New Britain, the location of a sizable Japanese harbor, but this could not be done so easily as these missions were reminiscent of the earlier attacks from Malang to Luzon. To hit Rabaul, planes would have to fly 600 miles to Port Moresby (itself in a vulnerable position), refuel and arm up, fly over the Owen Stanley Mountains (with peaks reaching 13,000 feet), dealing with the often difficult weather caused by such a radical jump in elevation; then attack their target, and return home via the same route. McKenzie flew a number of these missions and was decorated with a second Silver Star for heroism on 11 June as he was forced to make three passes on a target because of poor weather—a near-suicidal task under constant fire from enemy antiaircraft attack. Nevertheless, though, the difficulty of these attacks was reflected in their meager numbers: between 23 February and 1 April—a period of 36 days—a total of only six missions were flown against Rabaul, with a total of only 15 bombers, less than three planes per raid.[43]

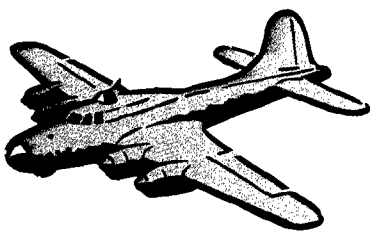
In early May, the Japanese set in motion their plan to take Port Moresby by amphibious landing by deploying two fleet carriers and one light carrier to escort the operation. Notified of the Japanese intentions by Ultra code breakers, Admiral Chester Nimitz deployed the *Yorktown* and the *Lexington* to the area, supplemented by Army airpower based in Australia and Moresby. The B-17s were used to locate the positions of the enemy ships, in addition to the hope that they could be used to vertically bomb enemy ships. And while the bombers did attack some of the enemy's convoys during the battle, high-altitude bombing against smaller moving ships was noted as a challenging task at best. Despite this, American carrier-based aviation succeeded in sinking one Japanese carrier and badly damaging another but lost the *Lexington* to enemy naval aircraft. The battle at Coral Sea was significant, as it broke a longstanding paradigm—it was the first naval battle where the opposing ships never saw each other. In terms of damage, it was nearly a one-for-one trade between the Japanese and Americans, but it was a strategic victory for the United States as it halted any future amphibious operations against Port Moresby.[44]

The 19th would continue hitting the Japanese where it could, as the situation in the Pacific began to take shape. American success at Midway—only a month after Coral Sea—halted forever any sense of Japanese momentum. And as the tide was turning slowly in the Pacific, American commanders sought to go on the offensive as a debate ensued between MacArthur, now the commander of the Southwest Pacific Area, and Nimitz, the Navy's supreme commander in the Pacific. MacArthur wanted to take

Rabaul immediately, but Nimitz disagreed, and after a week of discussion, the Joint Chiefs agreed to first seize the islands of Guadalcanal and Tulagi to protect Allied lines of communication in the area. With the attack on Guadalcanal set for 7 August preparatory measures were taken, as McKenzie and the 19th attacked Japanese bombers at Vukanau, a raid that MacArthur personally credited to Arnold as "preventing dozens of Japanese bombers from disrupting the US invasion."[45] It was shortly after Guadalcanal that the 19th Bomb Group redeployed to California, a mere shadow of the unit that had been the advance guard of American deterrence in the now conquered Philippines.

Conclusion

In 1951, novelist Walter Edmonds published the story of the earliest days of the Pacific war, an accounting he accurately titled, "They Fought with What They Had." The title is apropos. In a phrase, it signifies the fact that the outnumbered Americans (and their allies) did their best—at times serving downright heroically—despite fighting in a second-priority theater with *shoestring* logistics. Whether it was cannibalizing aircraft parts to put together a bomber that would make even Mary Shelley proud, using lawnmowers to service B-17s with oxygen, or just plain making multiple bombing passes on Japanese troop ships—even though the odds were dead set against them—the story of the first months of the Pacific war is one of endurance, long-suffering, and chutzpah, and all in the face of certain defeat. It is also this story that is personified in the life of McKenzie, a regular American who did nothing more than his duty. But while duty executed in the midst of pending victory is laudable, duty executed in the midst of failure is truly valorous.



To put it crudely, Washington's buildup of the Philippines was too little, too late. Additionally, MacArthur's hesitancy to launch his bombers is a mystery he took to his grave.

But what of the tragic surroundings McKenzie found himself starting on 8 December and running through the next summer? Who was responsible for the massive miscue at Clark that allowed the Japanese to wipe out in a single stroke what one observer called "the greatest single obstacle to their [Japanese] advance southward" by destroying the 19th Bomb Group on the ground? To probe even further, why did MacArthur delay so long in finally approving a B-17 raid on Formosa? And last, why were decisionmakers in Washington willing to begin amassing such a large airpower force—the largest of any force outside the continental United States—without also building an adequate airfield defensive network? These questions all fall outside the scope of this article, but to put it crudely, Washington's buildup of the Philippines was too little, too late. Additionally, MacArthur's hesitancy to launch his bombers is a mystery he took to his grave, though more thoughtful historians have speculated that *Dugout Doug* was a ground-oriented soldier and, as such, lacked a sense of airmindedness. It is unfortunate, as one can speculate on the *might have beens* and see that, had the FEAF bombers been launched the morning of 8 December, they most likely would have caught the bulk of the Japanese bomber force on the ground and as such seriously slowed the buildup of any Japanese momentum in the earliest days of the war in the Pacific.[46]

Notes

1. William Bartsch, December 8, 1941: *MacArthur's Pearl Harbor*, College Station: Texas A&M University Press, 2003, 16-18, 54, 61-62, 81-85, 121-125. The reader will note that this is the same Hoyt Vandenberg who would go on to be the second Chief of Staff of the Air Force, playing a vital role in the new service's formative years.
2. Melvin McKenzie, personal memoirs, February 2002, titled *One of the Lucky Ones*.
3. McKenzie recounts in his memoirs that he had the pleasure of personally dining with Lindbergh at Eglin Field, Florida, while the transatlantic legend was serving as an aviation consultant for the Army Air Forces, *One of the Lucky Ones*.
4. Joseph Corn, *The Winged Gospel: America's Romance with Aviation, 1900-1950,* New York: Oxford University Press, 1983.
5. *One of the Lucky Ones.*
6 Gerhard Weinberg, *A World at Arms: A Global History of World War II,* Cambridge University Press, 1994, 30-64.
7. *One of the Lucky Ones.*
8. Saburo Ienaga, *The Pacific War, 1931-1945*, New York: Pantheon Books, 1978, xiii, 3-12, 57-65.

9. Ienaga, 68.
10. Robert Doughty, et al, *Warfare in the Western World*, Vol 2, New York: Houghton Mifflin, 2001, 701-705.
11. It is worth noting that the Army consistently railed against the plan, stating, "To carry out the present Orange Plan...would be literally an act of madness." Nevertheless, the crux of the plan would remain the same up through 1941. See Ronald Spector, Eagle Against the Sun, New York: The Free Press, 1985, 54-57.
12. Bernhard Nalty, *Winged Shield, Winged Sword*, Vol 1, Washington DC: Air Force History and Museum Program, 1997, 194-195.
13. Nalty also notes that the United States hoped that the Soviets would allow the B-17s to fly shuttle raids between Luzon and Vladivostok, attacking Japan along the way. The Soviets never consented to this, though, as they were in the throes of a war against Germany in the summer of 1941, and the threat of a two front war with Japan was just too much.
14. The B-17D model was an improvement over the C in that it had superior range, speed, altitude, and armor, as well as self-sealing fuel tanks, One of the Lucky Ones.
15. A letter written on 1 December 1941 to the commander of the Hawaiian Air Force reveals the urgency of this matter, as Arnold wrote, "We must get every B-17 available to the Philippines as soon as possible." This was no overstatement, as by the time of Arnold's letter, more than half the heavy bombers and one-sixth of the fighters were already in the Philippines. See Kent Roberts Greenfield, United States Army in World War II: The War in the Pacific: The Fall of the Philippines, Washington DC: Center of Military History, 1993, 37-45.
16. Wesley Frank Craven and James Lea Cate, *The Army Air Forces in World War II,* Vol 1, University of Chicago Press, 1948, 178-179.
17. There was another near catastrophe during the trip, as on the leg from Wake to Port Moresby—the leg that goes south of the equator—one navigator frantically called out over that radio that he was 200 miles off course. Fortunately, his problems were solved quickly when he was told that he was using northern hemisphere charts as opposed to southern hemisphere—adjustment that quick got him "back on course," *One of the Lucky Ones*.
18. Bartsch, 171-173.
19. Bartsch, 173-176, 203.
20. Bartsch, 217-219.
21. Craven and Cate, 190-191. McKenzie also recalls that two of the group's four squadrons were moved, as four more B-17 squadrons from the 7th Bomb Group were scheduled to arrive there at Del Monte (as it affectionately became known) during the next week. Incidentally, these B-17s would never make it to the Philippines, as they were the unit that arrived in Hawaii in the midst of the Japanese attack on Pearl Harbor, One of the Lucky Ones. See also Bartsch, 409.
22. *One of the Lucky Ones.*
23. This time difference information comes from Craven and Cate, 203.
24. Bartsch, 275-6.
25. Craven and Cate, 203.
26. While Brereton was busy traveling to and from MacArthur's headquarters, his very capable staff decided that the B-17s should attack Takao harbor on Formosa, as the most damage could be leveled here against the Japanese. Additionally, target folders already were prepared for this set, so no prior reconnaissance was really necessary, Bartsch, 280-1.
27. Bartsch, 276-282. It is worth noting that there was actually an overt Japanese attack on the Philippines that morning, in between Brereton's two meetings at USAFFE Headquarters. A formation of 19 Japanese carrier-based fighters and attack aircraft struck the small airfield at Davou, destroying some of the field's infrastructure but damaging no aircraft, as none were present on the field; apparently news of this strike had not yet reached Manila, Bartsch, 279-80.
28. Bartsch, 283.
29. *One of the Lucky Ones.*
30. Benjamin F. Kimmerle, personal memoirs located at the Air Force Historical Research Agency, Montgomery, Alabama, IRIS No. 00043818.
31. *One of the Lucky* Ones; Bartsch, 409.
32. *One of the Lucky Ones*; Craven and Cate, 211-3.
33. As noted, there were only two flyable B-17s at Clark after the attack, but the 16 located at Del Monte were unscathed but needed to fly their mission through Clark to be armed and refueled.
34. One author, Walter Edmonds, cites a member of the 27th Bomb Group at Clark as having counted between 10 and 15 raids on average, counting as many as 35 on the American's last day at Clark. See *They Fought with What They Had*, New York: Little, Brown & Co., 1951, 213.
35. Edmonds, 212-6.
36. Because there was now just one boat, 109 of 210 officers and 650 of 1,300 enlisted were forced to stay behind, One of the Lucky Ones.
37. McKenzie actually was evacuated from Del Monte as a result of one of the lengthy missions, as nine B-17s took off from Malang, and encountered severe thunderstorms with three of the bombers turning back. The remaining six bombed their targets near Jolo and then landed at Del Monte. The next morning the planes departed for Malang (intending to again hit Jolo, but poor weather prevented an attack) evacuating 23 members of the 19th, Craven and Cate, 381; McKenzie, *One of the Lucky Ones.*
38. The Japanese were not the only trouble to the bomber crews: McKenzie recalls, "On one mission near Java, I was in a flight of B-17s slowly descending out of the clouds. As we broke out into the open, we were greeted with a barrage of gunfire from a Navy convoy directly below. Luckily, they missed. We rapidly climbed back into the clouds and wondered how the Navy could mistake us for the enemy because the Japanese did not have any four-engine land-based bombers!" Craven and Cate, 383. McKenzie, *One of the Lucky Ones.*
39. The presence of the E models forced the Japanese to change their tactics to attack the bombers head-on, an effective counter as the B-17E's top turret was not effective from this aspect, and the .30 caliber machineguns in the nose lacked sufficient range to deal with the type of attack. This was deadly but valuable experience for the Americans, as it would lead to the boosting of nose-gun power in the subsequent G models Craven and Cate, 388-90. McKenzie, *One of the Lucky Ones.*
40. John B. Lundstrom, *The First South Pacific Campaign: Pacific Fleet Strategy December 1941-June 1942,* Annapolis: Naval Institute Press,1976, 40-2.
41. Craven and Cate, 408.
42. As an interesting sidenote, McKenzie recalls in his memoirs, "Meanwhile, people were still being flown out of Del Monte Field on Mindanao. In mid-March, Harl Pease, another of my flight school classmates, was ordered to fly General MacArthur and his family out of Del Monte after their escape from Corregidor by PT boat. When MacArthur's staff saw the sad condition of Harl's B-17, they asked for another plane and an older pilot! This suited Harl because it gave him a chance to fly out more of our gang still at Del Monte. Those who didn't make it out joined a guerrilla army and continued the fight against the Japanese. Harl was later shot down in an August 1942 raid near Rabaul, New Britain. For heroism in completing his bomb run despite heavy damage to his B-17, he was awarded the Congressional Medal of Honor. After the war, we learned that Harl had been executed after his capture by the Japanese, who made him dig his own grave. Pease AFB, New Hampshire, was named in his honor."
43. *One of the Lucky Ones*; Craven and Cate, 416-7. On a happier note, McKenzie recalls on one Rabaul mission that his ball-turret gunner reported he was hit but okay. Upon returning to Port Moresby, the gunner got out of the plane, opened his jacket, with the bullet falling to the ground! It apparently had spent its energy getting through the turret and his coat and left him with only a minor burn.
44. Doughty, 710-11; Craven and Cate, 447-50.
45. Doughty, 713-4; One of the Lucky Ones.
46. William Bartsch has done us a great service in analyzing one of the great unanswered questions of World War II: who was responsible for the failures at Clark on the 8th? His work covers the events of the day from both the US and Japanese perspective and is a solid piece of historical detective work. See pages 409-24 for a detailed summation of his argument.

Lieutenant Colonel Plating is a graduate student at The Ohio State University, working on his PhD in military history. At the time of writing, he was a student at the Air Command and Staff College.

(*Air Force Logistics Management Agency* continued from page 42)

study the problem. Together, the functional experts and analysts ensure project results are sound, logical, and practical. Additionally, a multidisciplined approach helps prevent functional suboptimization. We don't want a proposed solution to a maintenance problem to create supply or transportation problems. As part of the project effort, we regularly update the organization or activity that proposed the study, along with the project sponsor. When the project is completed, the Agency provides the project sponsor with a detailed report that outlines the problem, provides a solution or solutions, and makes specific recommendations. Many of our projects are completed in 6-9 months. However, when necessary, we can complete an effort in less than 6 months. The sponsor is responsible for implementing the solution or recommendations. All our services are free to Air Force organizations.

We produce a variety of products, including process improvement studies, consulting studies, software prototypes, computer models, policy evaluations, handbooks or guides, and CD-ROM-based materials. Study length varies with each project.

Track Record

Our track record puts us in the lead in delivering robust, tailored answers to the most difficult and complex Air Force logistics problems. This can be seen in our efforts and partnerships that are turning expeditionary airpower support concepts into real-world capability. It also can be seen in our work in making dramatic improvements to the Air Force supply system and developing high-impact logistics publications and our leadership in planning and making logistics play in wargames, simulations, and exercises truly meaningful. In the future, we'll be playing a major role in shaping and implementing transformation within the Air Force Logistics community. The message is also loud—we work the important projects that shape tomorrow's Air Force, and we deliver what our customers need today.

The Results

This last year, we completed 27 improvement studies, 21 consulting projects, and 4 Requirements Team studies for our customers. Overall, this continued the trend for the Agency to produce more than 50 studies per year. The count included a variety of studies that either provided solutions to real-world problems or tackled the myriad of issues and challenges that surround making expeditionary airpower viable and supporting the warfighter. We worked hard on this—developing, implementing, and maintaining systems to optimally allocate Air Force spare parts; ensuring deploying units get the spares they need while minimizing overall Air Force impact; ensuring accurate data for budget, buy, repair, and distribution decisions for Air Force spares; examining maintenance manning for unmanned aerial vehicles; analyzing high-priority shipments in the Air Mobility Command system; and identifying regulations and instructions that limit implementing performance-based services acquisition. In our role as the executive agent for logistics play in wargames, we've been involved in a broad range of wargames or seminars that explored how we can better support the warfighter and improve the fidelity and realism of logistics play. We'll continue to do these same kinds of things next year, and we'll also take on a major new challenge—transformation.

We also published a variety of monographs and educational materials that focused on Air Force logistics thought, lessons from history, doctrine, and concerns. For some time, there's been a void in this area—we're filling that void with high-quality, high-impact publications. Of particular note was *Logistics Dimensions 2004*. It is a two-volume collection of essays and articles that looks at a broad range of logistics challenges facing the Air Force in the 21st Century. Four major themes dominate the work presented—Agile Combat Support, global support and mobility, supporting and maintaining aircraft, and contractor support and its implementation and implications. This fine set of books was produced in partnership with the Air War College. In partnership with the Air Command and Staff College, we published *Old Lessons, New Thoughts*. This small monograph is a collection of essays or articles that lets the reader examine logistics and technological lessons from history that are particularly applicable in today's transformation environment.

Transformation—The New Challenge

At a top level, there are several distinct steps that will be taken throughout the process. The first few steps fall into the acquisition area and include selection of hardware, software, and a system integrator. AFLMA already has been involved in the requirements development for the software piece and source selection. Once the hardware, software, and integrator have been selected, the multiyear integration effort can begin. AFLMA will play a pivotal role in this effort as well.

The integration effort includes the tasks of process engineering and development of the operational and system architectures. The process engineering effort defines the operational architecture. The operational architecture then provides the basis for the systems architecture, which, in turn, is translated into specific systems requirements for the integrator to implement in

the system. AFLMA, along with a field office, to be created using multifunctional experts from throughout the Air Force, will provide the process engineering and definition expertise.

AFLMA has a long history of defining business rules for inclusion in information technology systems, most notably for the Standard Base Supply System. Our pivotal role in the integration of the Expeditionary Combat Support System (ECSS) will posture us to continue that tradition well into the future. The end state for AFLMA, following ECSS implementation, is an agency that provides the expertise to improve Air Force logistics processes continually and translate those improvements into system and policy updates over time. The main difference will be the scope of AFLMA's capability, which will expand from primarily base-level processes and systems to the entire logistics enterprise.

The task at hand is monumental. It not only will take many years (about 8, by the current estimate) but also will require an additional level of expertise not currently resident at AFLMA. To fill the gap, we have developed a detailed game plan to build the missing capabilities. A new division will be created to lead the effort. The primary focus of the Logistics Innovation Division (LGI) will be intensive training in enterprise resource planning (ERP), Advanced Planning and Scheduling, and lean engineering. Coupled with our existing expertise in logistics, the training will posture us to guide the ECSS development process and ensure its success. LGI also will take the lead in training the rest of AFLMA, so that additional resources are available immediately if needed. To ensure this capability is maintained over time, we also will work with the Air Force Institute of Technology to develop focused courses (both continuing education and graduate) to educate our current and inbound personnel.

Once the ERP vendor and system integrator are selected, currently scheduled for fiscal year 2006, the process engineering effort will begin. At this time, the focus of LGI will shift to working with the program office, field office, Development & Fielding Systems Group, Materiel Systems Group, and the system integrator to configure the system. This effort will culminate in extensive configuration and testing and, ultimately, fielding. Along the way, we will use studies and analysis, modeling and simulation, and open dialogue with functionals in the field to help chart the path.

Colonel Cassidy is the commander of the Air Force Logistics Management Agency. He is a career logistician who has served at all levels of Air Force logistics. Mr Rainey is currently the Editor-in-Chief of the Air Force Journal of Logistics. He is a retired Air Force officer with more than 20 years of logistics experience. Ms Young is presently the editor of the Air Force Journal of Logistics. She has an extensive background in editing Air Force logistics manuals, particularly those used in the supply community. JL

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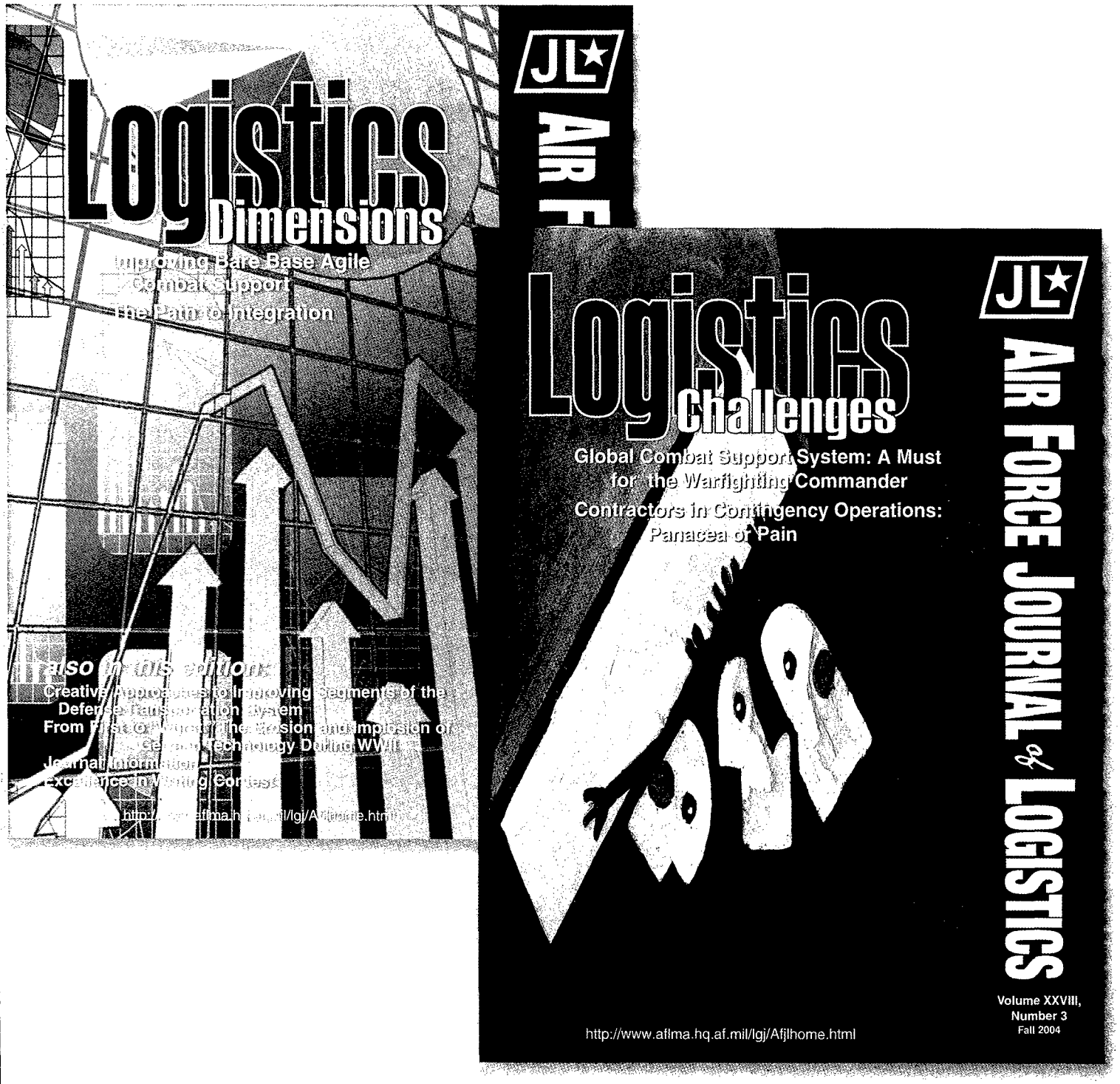

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